40

WPP 001/4 MB 5,7 q 3

8. Edition

En

PES 6 A 90 D 410 RS 2293 Komb.-Nr. 0 400 876 260

K2A 2

RSV 350-1300 A 0 B 1105 DL

supersedr12.83

company Daimler-Benz OM 352 A

engine UM 352 A 92 kW (125 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Fort closing at prestroke

2,15-2,25 (2,10-2,30)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>1</sup> /100 strokes 3	Difference cm <sup>-y</sup> 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>-/</sup> /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1300	10,0+0,1	6,7-6,8	0,3(0,45)			]
350	6,9-7,1	0,8-1,2	0,2(0,45)			

Adjust the fuel delivery from each outlet according to the values in

### **B.** Governor Settings

Degree of deflection of control lever	riated speed Control rod travel mm	rev/niin Control rod travel mm rev/min	Intermediate rated speed 4 5 6			Control lever deflection in degrees 7	Control lever deflection rev/min Control travel			Torque control  Control rod travel mm  10	
lose ca. 65	800 x = 5 9,0 4,0 1540	0,3-1,0 5,0 1340-1350 1420-1450 0,3-1,7		-	•	lose	350 100 350 490-550 700	7,0 min.19,0 6,9-7,1 = 2,0 max.1,0	1300 500 750 1140	10,4-10,6 10,4-10,5	

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

	M load stop	6 Rotational speed limitat		uel delivery naractenslics	Starting f	uel delivery 5	4a Idle stop		
Test oil to	emp 40°C (104°F) cm//1000 strokes	Note changed to ) rev/min 3	rev/min	cm//1000 strokes	rev/min	cm /1000 strokes 7	rev/min 8	Control rod travel mm	
1300	67,0-68,0 (65,0-70,0)	1340-1350*	750	59,0-61,0 (56,5-63,5)	100	78,0-88,0 (75,0-91,0	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col 2

1.85

**BOSCH** 

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. < 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

WPP 001/4 MB  $5,7 \times 8$ 

2. Edition

PES 6 A 90 D 410 RS 2293

ROV 300-1400 AB 1142 L

supersedes5. P4 company Daimler-Benz engine OM 352 A 124,0 kW (169 PS)

Komb.-Nr. 0 400 846 477

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings 2,15-2,25

Port closing at pres		2.10.2.30)	mm (from BDC)	mm (from BDC)						
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)				
rev/min	mm	cm <sup>3</sup> /100 strokes	cm³/ 100 strokes	mm	cm³/100 strokes	mm				
<u>'</u>	2	3		-	3	0				
1375	11,3+0,1	7,5-7,6	0,3(0,45)							
300	7,6-7,8	0,9-1,5	0,2(0,4)							

Adjust the fuel delivery from each outlet according to the values in [

### **B.** Governor Settings

Upper rated	peed			Intermediate	rated sp	eed	Lower rated	speed		Shding s	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min	(a)	deflection of control	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travet mm 3	rev/min 10	mm 11
max. ca. 61	10,3	16,0-19 1435-14 1550-15 0-1,	45 80	-	-	-	ca. 15 350-475	100 300	min.9,2 7,6-7,8	600	0,9-1,1 3,1-3,4 5,3-5,5 8,2

Torque control travel a =

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (2b) limitation intermediate speed	Fuel delh high idle s	rery characteristics (5e peed (50)	Starting idle switchin	•	Torque- travel	control (5)
r <del>ev/min</del> 1		rev/min 49 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	re=/min	travel mm
LDA 1375	0,7 bar 75,0-7 <b>6</b> ,0 (73,0-78,0)		LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	71,0-81,0 (68,0-84,0) = 14,3-14,7 mm E7	•	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

MB 5,7 x 8

Test at n =

1375 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) ,
PES6ARS2293	0,70		11,3 - 11,4
+ RQVAB1142L		0	11,0 - 11,1
		0,28	11,1 - 11,2

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

40

WPP 001/4 MB 5,7 q 9
1. Edition

En

PES 6 A 90 D 410 RS 2293

RSV 350-1000 A0B 1150 L

company Daimler-Benz OM 352 (A)

Komb.-Nr. 9 400 085 236

-Nr. 9 400 005 230

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,15-2,25 (2,10-2,30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>-</sup> /100 strokes 3	Difference cm '/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm 7100 strokes 3	Spring pro-tensioning (torque-control valve) mm
1000	10.0+0.1	6.0-6.1	0,3 (0,45)			
350	7,1-7,3	0,9-1,5	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

### **B. Governor Settings**

17	r rated speed Control rod travel mm		Intermediale rated speed 4 5 6		Control- lever deflection in degrees 7	lever deflection rev/min		( 9 )	rque control  Control rod  travel  mm   1 1	
lose ca. 42	4,0 1	0,3-1,8 1040-1050 1090-1120 0,3-1,7	•	•	•	ca.20	350 100 350 430-50 700	6,7 min.19,0 7,1-7,3 0 = 2,0 max. 1,0	400	10,0-10,1 10,0-10,2 11,6-11,8

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

9	ult-load stop emp 40°C (104°F)	6 Rotational- speed limitat		3a) Fuel delivery characteristics		uel delivery 5	<b>9</b>	Idle stop	
	cm <sup>1</sup> /1000 strokes 2	changed to ) rev/min 3	rev/min	cm <sup>1</sup> /1000 strokes 5	rev/min 6	cm*/1000 strokes 7	rev/min 8	travel mm 9	
1000	59,5-65,5 (57,5-62,5)	1040-1050*	•	-	200	14,2-14,8 mm RW	•	-	

Checking values in brackets

\* 1 mm less control rod travel than col 2

1.85

**BOSCH** 

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. C. 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany. Incrimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

40

WPP 001/4 MB 5,7 q 10 1. Edition

En

PES 6 A 90 D 410 RS 2293

RSV 350-1400 AOB 1150

supersedes -

company Daimler-Benz OM 352 (A)

Komb.-Nr. 9 400 085 226

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(2,10-2,30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm /100 strokes 3	Difference cm <sup>-y</sup> 100 strokes 4	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Spring pre-tensioning (forque-control valve) mm 6
1380	10,0+0,1	6,2-6,3	0,3 (0,45			
350	7,1-7,3	0,9-1,5	0,2 (0,4)			

Artjust the fuel delivery from each outlet according to the values in

### **B. Governor Settings**

16.7	on traver traver				Control lever		rated speed Control rod travel mm	3 to	rque control   Control rod   travel   mm	
lose	800 x = 4	0,3-1,0	-	•	•	ca. 30	100	6,7 min.19,0	1380 500	10,0-10,1 10,0-10,2
ca. 61							350 460-68 700	7,1-7,3 ) = 2,0 max. 1,0	400	11,6-11,8

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

(20 F	ill-load stop	6 Rotational- speed limital	Fuel delivery characteristics		Starting I	luel delivery 5	4a Idle stop		
Test oil to rev/min 1	cm /1000 strokes 2	Note changed to ) rev/min 3	rev/min	cm/IC 30 strokas	rev/min	cm /1000 strokes	rev/min 8	Control rad travel mm 9	
1380	61,5-62,5 (79,5-64,5)	1420-1430*	-	-	100	14,2-14,8 mm RW	•	-	

Checking values in brackets

\* 1 mm less control rod travel than col 2

1.85

**BOSCH** 

Geschäftsbereich KH-Kundendienst-Kfz-Ausrustung c 1980 by Robert Bosch-GmbH, Postfach 50, D-7000 Stuttgart 1-Printed in the Federal Republic of Germany Important on Recombilique Fédérale d'Allemagne par Robert Bosch-GmbH.

WPP 001/4 MB 5.7 s 2

Edition

PES 6 A 90 D 410 RS2293

EP/RSV 350-1400 AO B2002 L

(1) AO B2053DL (2) supersedes 10.82

Daimler-Benz company:

OM 352

(1 - 100kW - 130PS) (2 - 82 kW - 111PS)

Komh.-Nr. 0 400 876 265 (1) 0 400 876 280 (2)

### All test specifications are valid for Besch Fuel Injection Pump Test Benches and Testers A. Fuel Injection Pump Settings

mm (from filX:)

Rotational speed rev/min	Control rod travel mm	Fuel delivery (1) cm³/100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery (2) cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1380	10,0+0,1	6,1-6,3	0,3(0,45)	9,0	5, 1 - 5, 2	
350	7,1-7,3	0,9 - 1,5	0,2(0,4)	+0,1 7,4-7,6	0.9 - 1,5	

Adjust the fuel delivery from each outlet according to the values in

### **B.** Governor Settings

2002L (1)

Degree of deflection of control		Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rod travel mm	Degree of deflection of control lever	rated spe rev/min 8	control rod travel mm	$\sim$	que control Control rod traval mm
lose ca. 63	800 x = 9,0 4,0 1600	0,3-1,0 4,0 1420-1430 1505-1535 0,3-1,7				ca.31	350 100 350 560- 700	6,7 min. 19 7,1-7,3 620=2,0 max.1,0	•	-

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-los	ad stop	If U / Hotelworlds   Rost   Lands   La		Starting fuel delivery		Sa Idle stop		
1	. 40°C (104°F) cm³/1000 strokes	Note: changed to rev/min 3	revimin 4	cm <sup>3</sup> /1000 strokes 5	rev/min	cm <sup>3</sup> /1000 strokes 7		Control rod travel mm
	61, 5 - 62, 5 59, 5 - 64, 5)	1420-1430*				14,2-14,8 mm RW 3,6-4,6 mm RW	350	7,2

Checking values in brackets

\* 1 mm less control rod travel than col. 2

**B.** Governor Settings

2053DL (2)

1 Upper rated speed Degree of deflection of control lever rev/min 1 2 3		Intermediate Degree of deflection of control lever		ed Control rod travel mm	4 Lowe Degree of deflection of control lever 7	revimin 8		3 Tor	Control rod travel mm	
lose	800 x	0,3-1,0 = 4,0				ca.29	350 100	7,0 min. 19	1380 1000	9,0 9,5
ca.61	8,0 3,4 1600	1420-1430 1455-1485 0,3-1,7					350 530- 700	7,4-7,6 590=2,0 0 - 1	500	9,9

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-I	oad stop	6 Rotational- speed limitat				fuel delivery	(Sa) Idle stop	
Test ail temp 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note changed to rev/min	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min 8	Control rod travel mm 9
(2) 1380	51,0 - 52,0 (49,0 - 54,0)	1420-1430 *	1000	55, 5 - 58, 5 (53, 5 - 60, 5)	100	72, 25 - 82, 25	350	7,5
			© <sub>600</sub>	46, 0 - 48, 0 (44, 0 - 50, 0)				

Checking values in brackets

\* 1 mm less control rad travel than col 2

## Testoil ISO 4113

### **B. Governor Settings**

1 Upper Degree of deflection of control lever	Degree of deflection of control of control		deflection travel of control			Lower rated speed Degree of deflection of control lever rev/min rev/min 9			que control Control rod travel mm 11
			·					•	
<b>5</b>									

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-le	oad stop				Starting Idle	fuel delivery	(5a) Idle stop	
Test oil temp 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min	cm <sup>3</sup> /1000 strokes	rev/min cm <sup>3</sup> /1000 strok			Control rod travel mm 9

WPP 001/4 MB 5,7 r 5

1. Edition

PES 6 A 90 D 410 RS 2293 Z

RSV 350-1500 A 2 B 741 L A 2 C 741 L supersedes Daimler-Benz

Komb -- Nr. 0 400 876 273

OM 352 100 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

(2,10-2,30)

mm (from BDC)

Rotational speed rev/min	Control rod travel	Fuel delivery cm/100 strokes 3	Difference cm <sup>17</sup> 100 strokes 4	Control rod travel mm 2	Fuel delivery cm //100 strokes 3	Spring pre tensioning (forque-control valve) mm 6
1450	9,9+0,1	6,8-6,9	0,3(0,45)			
350	7,4-7,6	1,9-2,5	0,2(0,4)			
		1			<u> </u>	

Adjust the fuel delivery from each outlet according to the values in C

### **B. Governor Settings**

1 Uppe	r rated speed		Intermer	tiate rated	speed	<b>(</b> •)	Lower	rated speed	1 ~ /	rque control
Degree of deflection of control	Control rod tra <del>vel</del> mm	Control rod travel mm rev/min				Control- lever deflection	rev/min	Control rod travel mm	rev/min	Control rod travel mm
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
lose	800	0,3-1,0	•	-	•	ca. 21	350	7,5	-	-
	X =	1,0						min.19,0		
ca. 60	8,9 3,4 1650	1500-1505 1555-1570 0,3-1,7						7,4-7,6 5=2,0 max.1,0		

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

<b>(2b)</b> ''	ill load stop	6 Rotational speed limital	-34	iel delivery	Starting f	Starting fuel delivery 5 4a ldle stop			
Test of to rev/mm	cm /1000 strokes 2	Note changed to 1 rev/min 3	rev/min	cm <sup>-/</sup> 1000 strokes 5	rev/min	cm/1000 strokes 7	rev/min 8	Control rod travel mm 9	
1450	67,5-68,5 (65,5-70,5)	1500-1505*	-	-	100	14,2-14,8 mm RW	•	-	

Checking values in brackets

\* 1 mm less control rod travel than col 2

Testoil-ISO 4113

## Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 r 3 3. Edition

E

PES 6 A 90 D 410 RS 2293 Z Komb.-Nr. O 400 875 267

RSV 350-750 AOB 741 L AOC 741 L supersedes 8-82

company Daimler-Benz engine: OM 352

Alt test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

(2.1 - 2.3)

mm (from BDC

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm³/ 100 strckes 4	Control rod travel mm 2	Fuel delivery  cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9,8-9,9	5,0-5,1	0,3(0,45)			
350	6,4-6,6	0,5-1,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

### **B. Governor Settings**

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe		<b>3</b> To		
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		Control rod travel	
lever	rev/min	mm	lever	rev/min	mm	lever	rev/min	mm	rev/min	mm	
1	2	3	4	5	6	7	8	9	10	11	
lose	800	0,3-1,0	-	•	-	ca.22	350	6,5	-	-	
	x =	2,0					100	nin.19,0			
ca. 34	750 <b>-</b> 75	5 8,8 1 4,0	1				370-4	0 = 2,0			
	820	0,3-1,7	i								

\*\* Set idle-speed auxiliary spring at 2 mm control-rod travel.

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-k	oad stop	6 Rotational- speed limitat.	6 Rotational- speed limitat. 3a Fuel delivery characteristics			fuel delivery	(5a) lidle stop		
rest oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min cm³/1000 strokes 6 7		rev/min	Control rod travel mm	
700	50,0-51,0 (48,0-53,0)	750 <b>*</b>	•	<b>-</b> .	100	78,0-88,0 (75,0-91,0)	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

WPP 001/4 KHD 6,1b1

2. Edition

PES6A85D 410/3 RS2366

EP/RS 325/1325 AOB 691 DL

supersedra 9.83 company KHD

BF6L913

88 kV/2650 min<sup>-1</sup>

Komb.-Nr. 0 400 866 057

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

(1.85-2.05)

mm (from BDC)

Rotational speed rev/min	Control rod travel	Fuel delivery cm //100 strokes	Oifference cm <sup>17</sup> 100 strokes	Control rod travel mm	Fuel delivery cm <sup>1</sup> /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
1325	11,4+0,1	7,6-7,7	0,3(0,45)		· .	
200	8,9-9,1	1,6-2,2	0,3(0,05)			
		}	4			
		i				

Adjust the fuel delivery from each outlet according to the values in

### **B.** Governor Settings

	r rated speed Control rod travel mm		Intermed	iate rated	speed 6	Control lever deflection in degrees 7		rated speed Control rod travel mm	3 for	rque control  Control rod  travel  mm   1 t
lose	800 X = 7.		-	•	-	VH ca.6		6,0 2,7-3,7 2,7-2,9	850 500	11,9-12,1 11,9- 12,
VHca.66		1355-1365 1450-1480 0 - 1,0					1300 1400	2,0-2,2		

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

<b>6</b>	ill-load stop	6 Rotational- speed limitat	39 f	uel delivery naracteristics	Starting I	fuel delivery 5	4a Idle stop	
Test oil te rev/min 1	cm /1000 strokes	Note changed to ) rev/min 3	rev/min 4	cm <sup>1</sup> /1000 strokes 5	rev/min	cm/1000 strokes 7	rev/min	Control root travel mm
LDA 1325	0,5 bar 75,5-76,5 (74,5-77,5)	1355-13651	LDA 500	0 bar 45,0-48,0 (43,5-49,5)	100	110,0-120	,0	

Checking values in brackets

\* 1 mm less control rod travel than col 2

indienst Kfz-Ausrustung bH, Postfach 50, D-7000 Stuftgart ti Printed in the Federal Republic of Germany rale d'Allemagne par Robert Bosch GmbH

Test at n =

700

rev/min decreasing pressure - in bar gauge pressure

KHD 6,1 b 1

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm (1)
PES 6 ARS2366 + EP/RSAOB691DL	0,50	0,38 0,10	11,4 - 11,5 11,1 - 11,2 9,4 - 9,8

Notes

(1) when n =

rey/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 KHD 4,1 c

2. Edition

Er

PES 4 A 80 D 410/3RS2523

Komb.-Nr.: 0 400 861 050

RS 325/1400 AOB 699 DL AOC 699 DL supersedes company 9.82 KHD F 4 L 913

•

64 kW / 2800 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

1,90-2,00 (1.85-2.05) mm (from BDC)

Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensionin (torque-control valve		
mm 2	cm 1/100 strakes	cm <sup>-/</sup> 100 strokes 4	mm 2	cm·/100 strokes	mm 6		
12,0+0,1	6,8-6,9	0,2(0,35)					
8,4-8,6	0,9-1,5	0,2(0,3)					
	mm 2 2 12,0+0,1	travel mm 2 cm 1/100 strokes 2 12,0+0,1 6,8-6,9	travel mm 2 cm 1/100 strokes 2 cm 1/100 strokes 4 cm 1/100 strokes 4 12,0+0,1 6,8-6,9 0,2(0,35)	travel	travel		

Adjust the fuel delivery from each outlet according to the values in

### **B. Governor Settings**

	r rated speed		Interme	diate rate	speed	<b>①</b>	Lower	rated speed	3 Torque control		
Degree of deflection of control lever	travel mm	travel mm rev/min				Control- lever deflection in degrees	rev/min	travel mm	rev/min	travel mm	
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-1,0				VHca.55	325	8,5	1400	12,0-12,1	
	×	= 5,25				FHca.26	100	min.11,0	1090	12,2-12,5	
VHca.55	1440-1	450=11,0	•				425-455	= 5,5	550	12,8-12,9	
<b>⊘</b> FH max.		530= 4,0 1,3 - 1,4					180-230				

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat	11901	uel delivery naractenstics	Starting t	luel delivery 5	4a Idle stop		
rev/min	emp. 40°C (104°F) cm3/1000 strokes 2	Note changed to ) rev/min 3	rev/min	cm2/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1400	68,0-69,0 (66,5-70,5)	1440-1450*	800	61,5-63,5 (60,0-65,0)	-	-	325	8,5	
			550	60,5-62,5 (59,0-64,0)					

Checking values in brackets

\* 1 mm less control rod travel than col 2



WPP 001/4 KHD 4.1 c 3 2. Edition

PES 4 A 80 D 410/3 RS 2523

RSV 325-1400 A2B 1022 DL supersedes 9.84 KHD

Komb.-Nr. 0 400 864 043

A2C 1022 L company

F4L 912

64 kW/2800 min<sup>-1</sup>

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

Teston-150 4113

1,9-2,0 (1.85-2.05)

mm (from BDC)

Rotational speed rev/min t	Control rod travel mm 2	Fuel delivery cm //100 strokes 3	Difference cm <sup>1/</sup> 100 strokes 4	Control rod travel mm	Fuel delivery cm <sup>-/</sup> 100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	12,0+0,1	7,0-7,1	0,2(0,35)			
325	8,8-9,0	0,9-1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in §

### **B. Governor Settings**

Degree of deflection of control lever	tion traver		Intermediate rated speed 4 5 6		Control- lever deflection in degrees 7	lever deflection rev/min		1 3 /	rque control   Control rod travel mm	
lose	800 X =	0,3-1,0 4,5	-	-	•	ca.21	325 100	5,0 min.19,0	1400 935	12,0-12,1 12,2-12,4
ca.58	11,0 4,0 1650	1440-1450 1515-15:5 0,3-1				٨	325 525-5 700	5,4-5,6 35= 2,0 0 - 1,0	500	13,2-13,3

The numbers denote the sequence

### C. Settings for Fuel Injection Pump with Fitted Governor

U	it-load stop	Rotational-		ret delivery paracteristics	Starting f	uel delivery 5	4a) Idle stop		
Test oil temp 40°C (104°F) rev/min cm1/1000 strokes 1 2		Note changed to ) rev/min 3	rev/min	cm1/1000 strokes	rev/min	cm V1000 strokes	rev/min	Control rod travel mm	
1400	70,0-71,0 (68,5-72,5)	1440-1450	850	61,5-63,5 (60,0-65,0)	-	-	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col 2

Testoil-ISO

5. Edition

PE 6 A 90 D 410 RS 2524 Komb.-Nr. 0 400 646 251

RO 225/1200 AB 1008 L

supersede 6.83 DAF company: DH 825

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection, Pump Settings

Port closing at prestroke

2,30-2,40 RW9

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,4-9,5	7,1 - 7,2	0,3(0,45)			
225	6,5-6,7	0,9 - 1,5	0,2(0,4)			
			Port clos rod trave	ing diffe 9 mm an	rence between c 1 max. = 4,5-5,	ontrol- ocamshaft

Adjust the fuel delivery from each outlet according to the values in

### **B. Governor Settings**

Checkin PRG che	g of slider ck Control rod	Full-load s Setting po	int	•	cifications (4)	idle spec Setting p	_		cifications 5	Torque o	control Control rod
rev/min 1	travel	rev/min 3	rad travel rnm 4	nd trad mm 5	rev <i>ir</i> nin 6	rev/min 7	red travel	rev/min	travel	rev/min	travel
650	19,2-20,8	650	20,0		1245-1260 1325-1355	225	8,7	100	min.10,2	-	-
VH =	max. 46°			156°	0 - 1,0			225 410-4 550	8,6 - 8,8  50=2.0  max. 1,0		

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

	delivery on control lever mp. 40°C (104°F)	Control rod stop	Fuel deliv	Fuel delivery characteristics			tuel delivery 6
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5		rev/min 6	red travel cm <sup>3</sup> /1000 strokes:/ mm 7
1000	71,0 - 72,0 (69,0 - 74,0)	600	-	-		100	128,0-138,0 (125,0-141,0) = 19,5 - 21,0 mm RW

Checking values in brackets

2

## **Test Specifications** Fuel Injection Pumps 2 and Governors

WPP 001/4 DAF 8.3 k 2

2. Edition

PE 6 A 95 D 410 RS 2525

RQ 225/1200 AB 1156 L

Specifications apply to test tubing 1 680 750 015

Komb.-Nr. 0 400 646 268

supersedes 83 company engine DH 825

All test specifications are valid for Bosch Fuel Injection Fump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

(1 95-2 15)

mm (from BDC)

		(1,90-2,10)				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery  cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,4+0,	7.3-7.5	0,35(0,6)			
225	5,7-5,	0,7-1,1	0,35(0,59	)		

Adjust the fuel delivery from each outlet according to the values in

### **B.** Governor Settings

PRG che	Control rod	Full-load : Setting po rev/min 3	•	•	rev/min	idle spec Setting p rev/min 7	point Centrel   red travel	Test spe	control rod travel	Torque ( rev/min 11	Control rod (3)
650 VH=	19,2-20,8 max. 46°	650	20,0	_	1245-1260 1300-1330 0-1,0	225	5,8	225 310-	min. 7,3 5,7-5,9 350-2,0 max. 1,0	650 1035	10,4-10,5 11,3-11,4 10,9-11,1 10,5-10,8
n flywei	ontrol travel		0,3	mm		ed regula	ition: At		60 min <sup>-1</sup>		1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	2	Control rod stop	3	Fuel delivery characteristics		<b>3</b> b	Starting (	uel delivery
rev/min 1	cm <sup>3</sup> /-1000 strokes 2		rev/min 3		rev/min 4	cm <sup>3</sup> /~1000 strokes 5		rev/min 6	cm <sup>3</sup> /1000 strokes/ mm 7
1200	73,0-75,0 (71,0-77,0)		•		800	74,5-77,5 (72,0-80,0		100	120,0-130,0 (117,0-133,0) = 19,5-21,0 mm RW

Checking values in brackets

WPP 001/4 DAF 8,3 k 7. Edition

En

PE 6 A 95 D 410 RS 2525, Y, X

RQ 225/1200 AB 1007 L

companyDAF engine DN 825 (Y.X) DHR 825

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2.00-2.10 RW9

mm (from BDC)

	-	00-6120 11113				
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12.6+0.1	10,8 - 11,0	0,35(0,6	)		
225	5,7-5,9	0,7- 0,9	0,35(0,5	)		•
		POrt closing d and max. = 3 -			control.rod tra	vel 9 mm

Adjust the fuel delivery from each outlet according to the values in

### **B. Governor Settings**

Checkin PRG che	g of slider ick (1)	Full-load s Setting po			cifications (4)	ldle spec Setting p	•		cifications (5)	Torque d	(3)
rev/min	Control rod travel mm 2	1	Central red travel rnm 4	Central rad travel rnm 5	rev/min 6		Centrel rad travel rn.m 8	rev/min 9	Control rod travel mm	rev/min 11	travel
650	19,2-20,8	650	20,0	11,6	1230-1245	225	5,8	100	min.7,2	-	•
VH =	max. 46 <sup>0</sup>			4,0 1390	1315-1345 0 - 1,0	4			5,7-5,9 80 = 2,0 max. 1,0		

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation 1230-1245 min<sup>-1</sup>

1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

governor	Selivery on control lever mp. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics 3b	Starting f	uel delivery
rev/min 1	cm <sup>3</sup> /-1000 strokes	rev/min 3	rev/min	cm <sup>2</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1900 strokes:/ mm 7
LDA 1000 X 1000 Y 1000	0,7 bar 108,5 - 110,5 (106,5 - 112,5) 90,5 - 92,5 99,0 - 101,0	(12 mm RW (12,5 mm RW)	LDA 600 X 600 Y 600	0 bar 84,5 - 87,5 82,0 - 90,0) 77,0 - 80,0 77,0 - 80,0	(	120,0-130,0 117,0-133,0) = 19,5-21,0

Checking values in brackets

1.85

BOSCH

leschäftsbereich KH. Kundendienst. KIz-Ausrüstung. 5 1980 by Robort Boech (mohit, Postiach 80, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany. Ingrinde en République Fédérale d'Allemagne per Robort Boech GmbH.

DAF 8,3 k

Test at n =

rev/min decreasing pressure - in bar gauge pressure

	•		
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 ARS 2525 +AB 1007 L	0,7		12,6 - 12,7
+AB 1007 E	0,,,	0,30 0,26	12,3 - 12,4 11,7 - 12,0 11,5 - 11,6
		0	11,5 - 11,6

Notes:

(1) when n =

rev/min and gauge pressure =

bar ( = maximum full-load control rod travel)

A17

W00 001/4 KHD 5.1 d

ス. Edition

PES 5 A 80 D 410/3

Komb.-Nr. 0 400 865 016

EP/RSV 325-1150 A3 B2014DL

9.84 supersecies

A8 C2014L

company KHD engine F5 L912

63kW - 85PS

1 - 3 - 5 - 4 - 2  $0 - 72-144-216-288^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$ 

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 1,90-2,00

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery 2526 cm³/100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm <sup>1</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8	5,5 - 5,6	0,2(0,35)			
325	+0,1 9,0-9,2	0,9-1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in [

### **B.** Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	rated spe		3 Torque control	
Degree of deflection of control lever		travel	Degree of dellection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod trav <del>el</del> mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	800	0,3-1,0				ca.21	325	5,0		+0,1
	X =	4,75					100 325	min. 19 5,4-5,6	1150 950	11,8 12,1
ca.55	10,8	1190-1200					390-4			12,7
(5)	4,0 1350	1235-1265 0,3 - 1,7			•		500	0 - 1		12,8

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ad slop	6 Rotational- speed limitat.	Rotational- speed limitat.     See delivery characteristics				5a Idle stop		
Test oil temp rev/min 1	cm <sup>3</sup> /1000 strokes	Nate: changed to rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm <sup>1</sup> /1000 strok <del>es</del> 7	rev/min 8	Control rod travel mm	
1150	55,5 - 56,5 (54,0 - 58,0)	1190-1200*	775	57,0 - 59,0 (55,5 - 60,5)	-	•	-	-	
		,						,	

Checking values in brackets

1 mm less control rod travel than col. 2

Testolitiso 4113

## Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 6,0 a 1

1. Edition

PES 6 A 90 D 410 RS 2667

ROV 300-1400 AB 1201 L

supersedes -

Komb.-Nr. 0 400 846 535

company: Daimler-Benz

KOMD.-AF. U 400 040 555

engine. OM 366 100 kW

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel injection Pump Settings

Port closing at pres	troke	2,25-2,35 (2-20-2-40)	mm (from BDC)			
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>2</sup> /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>9</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,1+0,1	6,4-6,5	0,3(0,45)			
300	8,7-8,9	0,9-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

### **B.** Governor Settings

Upper rated s	peed		Intermediat	o rated ap	eed	Lower rated	apeed		Sliding	leeve travel
deflection	revimin Control rod travel mm 2	travel	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel		mm 11
max. ca. 61	1500	15,2-17, 1440-145 1545-157 0-1,0	0	•	-	ca. 21	300		300	0,8-1,3 2,3-2,8 4,1-4,3 8,5

Torque control travel a =

1,1<sub>mm</sub>

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed 2b trnitation intermediate speed	Fuel deli- high idle s	very characteristics (5a poed (5b)	Starting idle switchir	<u> </u>	Torque- travel	control (5) Control rod
rev/min 1	cm <sup>3</sup> /1000 strokes .	rev/min 49	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes	rev/min 8	travel mm
1400	63,5-64,5 (61,5-66,5)	1440-1450*	5G0 900	51,0-54,0 (48,5-56,5) 53,5-56,5 (51,0-59,0)	100	78,0-88,0 (75,0-91,0) =16,4-17,0 mm RW	500 900	11,1+0, 12,2+0, 11,7+0, 11,5+0,

Checking values in brackets

\* 1 mm less control rod travel then col. 2

## **Test Specifications** Fuel Injection Pumps 1 WPP 001/4 VOL 7,0 g and Governors

6. Edi. .

PE 6 P 110 A 320 RS 413 Komb.-Nr. 0 401 846 432

ROV 250-1200 PA 499

superset@.83 company01vo engine TD 70 F 174 kW (237 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
fev/min 1	mm 2	cm <sup>3</sup> /100 strokes 3	cm <sup>3</sup> / 100 strokes 4	mm 2	cm <sup>3</sup> /100 strokes 3	mm 6
700	12,2+0,1	12,5-12,7	0,4(0.75)			2,5 ±0,1 (2,2-2,9)
250	5,2-5,4	1,6-2,0	0,3(0,6)			(2,2-2,7)

Adjust the fuel delivery from each outlet according to the values in [

### **B. Governor Settings**

deflection	rev/min Control rod travel	Control rod travel mm rev/min 2s	Intermediate Degree of deflection of control lever	1	Control rod travel mm	Lower rated Degree of deflection of control lever 7	speed rev/min 8	Control rod travel mm 3	Sliding s rev/min 10	mm
max. ca. 62		15,2-17,8 1240-1250 1370-1400 0 - 1,0	-	-		ca. 9 800-410 3	100 250		530	0,6-0,9 3,2-3,6 5,8-6,0 8,2

Torque control travel a =

### C. Settings for Fuel Injection Pump with Fitted Governor

	d stop mp. 40°C (104°F) 2	intermediate speed	high idle s		idie ewitchi	ng point	travel	Control roc travel
rev/min 1	cm <sup>3</sup> /1000 strokes	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min	cm <sup>3</sup> /1000 strokes 7	rev/min	mm 9
LDA 700	0,7 bar 125,0-127,0 (122,0-130,0		LDA 700	0 bar 79,0-82,0 (76,0-85,0)	100 250	170,0-210,0 = 20,0-21,0 mm RW 16,0-20,0		-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

VOL 7,0 g

- 2 -

Test at n =

500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure - bar	Gauge pressure = bar	mm (1)
PE 6 PRS 413 + RQVPA 499	0,70	0 0,54 0,17	12,2 - 12,3 9,6 - 9,7 12,0 - 12,1 9,7 - 9,9

Notes

(1) when n ~

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

**A21** 

A21

7"

## **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 VOL 7.0 g2

2. Edition

RQV 250-1200 PA 499 PE 6 P 110 A 320 RS 413 X

Komb.-Nr. 0 401 846 470

superseder 83 companyTD 70 FC engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC)RW=9,0-12,0 mm Port closing at prestroke (2.95-3.15)Rotational speed Control rod Fuel delivery Difference Control rod **Fuel delivery** Spring pre-tensioning (torque-control valve) cm³/ 100 strokes rev/min cm<sup>3</sup>/100 strokes cm<sup>3</sup>/100 strokes 2,5-0.1 700 12,3+0,1 12,7-13.0 0.4(0.8)(2,2-2,9)250 5.2-5.4 1,6-2,0 0.3(0.6)

Adjust the fuel delivery from each outlet according to the values in

### **B. Governor Settings**

deflection	rev/min Control rod travel	Gassel C	Intermediate Degree of deflection of control lever	rated sp	Control rod travel	Lower rated Degree of deflection of control lever	speeci rev/min	Control rod travel	rev/min	
	1200 11.3 4.0 1500	15,2-17,8 1240-1250 1370-1400 0-1,0		-	-	ca. 9 300-41	100 250	min.6,7 5,2-5,4	200 530 870 1200	0,6-0,8 3,1-3,5 5,6-5,9 7,9

Torque control travel a

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		intermediate speed	high idle :	rery characteristics (5e peed (5b)	Starting idle switchin		Torque- travei	control 5
rev/min 1	cm <sup>3</sup> /1000 strokes	rev/min 49	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 700	0,9 bar 127,0-130, (124,0-133,0)	1240-1250* 0	LDA 700	0 bar 79,0-82,0 (76,0-85,0)	100	170,0-210,0 =20,0-21,0 mm RW 16,0-20,0	•	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

VOL 7,0 g 2

- 2 -

Test at n =

500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 PRS 413 X + RQVPA 499	0,90	0 0,62 0,24	12,3 - 12,4 9,6 - 9,7 12,1 - 12,2 9,7 - 9,9

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

### **Test Specifications** 2 Fuel Injection Pumps (2)

WPP 001/4 ROL 16,2 a 1

2. Edition

PE 8 P 120 A 920/4 RS 3047 Komb.-Nr. 0 401 848 716 1 - 6 - 2 - 5 - 8 - 3 - 7 - 4 je  $45^{\circ} + 0.5^{\circ} + 0.5^{\circ} + 0.75^{\circ}$ 

and Governors

RO 900 PA 491

supersede 3.84 company. Rolls Royce C 8 TCA 250 kW (340 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

(3,45-3,65)

mm (from BDÇ) RW= 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pie-tensioning (torque-control valve) mm 6
850	13,4+0,	22,0-22,2	0,5 (0,9)			
300	5,1-5,	2,1-2,7	0,8 (1,2)			
		assembly 1		<b>119</b> and f	zzle-and-holder uel-injection t	

Adjust the fuel delivery from each outlet according to the values in

### **B. Governor Settings**

Checkin PRG che	g of slider	Full-load Setting p		_	cifications (4)	Idle speed regulation Setting point Cantral Control				Torque control  Control rod		
rev/min 1	travel	rev/min 3	red travel mm 4	ned travel mm	rev/min 6	rev/min 7	red travel	rev/min 9	travel	rev/min 11	travel	
•	-	-	-	12,4 4,0 1050	932-941	•	•	•	•	•	-	

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At 900-905 min-1

1 mm less control

### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Cantrol rad stop 3a	Fuel deliv	ery characteristics 3b	Starting fuel delivery Idle speed		
rev/min	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min	cm³/~1000 strokes 5	rev/min	rad travel cm <sup>3</sup> /1000 strokes:/ mm	
850	220,0-222,0 (21 <b>7</b> ,0-225,0)	-	•	•	100	19,5-21,9 mm RW	

Checking values in brackets

①

Testoil-150 4113

## Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 m 2

1. Edition

PE 6 P 110 A 720 RS 3006

RQV 200-1100 PA 383 KR

supersedes Scania Scania DS 1102

Komb.-Nr. 0 401 846 711

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at pres	troke (	3,25-3,45)	mm (from BDC)	RW=9,0-	12,0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference cm <sup>3</sup> /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm <sup>3</sup> /100 strokes	100 strokes	mm 2	cm <sup>3</sup> /100 strokes	mm 6
	4	3		ļ <del>.</del>		-
850	13,0+0,1	15,6-15,8	$0, \tilde{c}(0,8)$			2,5 <sup>±</sup> 0,1 (2,2-2,9)
225	5,7-5,9	0,9-1,3	0,2(0,4)	,		(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

### **B.** Governor Settings

Upper rated a	peed			Intermediate	rated sp	eed	Lower rated	speed		Sliding a	leeve travel
deflection	Control	Control rod travel	•	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		0
of control lever	rod travel mm	rev/min	<b>(29)</b>	lever	rev/min	mm (4)	lever	rev/min	mm 3	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
max.	1100	15,2-17	8,	•	-	-		100	min.7,2		0,5-0,8 3,7-3,9
ca. 63	13,0 4,0 1400	1140-11 1270-13 0-1,	00					225 360-4	5,7-5,9  20-2,0		5,3-5,4 8,0
							<b>3</b>				

Torque control travel a = 0,8 mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter	d stop	Rotational-speed 2b imitation intermediate speed	Fuel dulin high idla s	very characteristics (5e peed (5b)	Starting idle switchin	. •	Torque- travel	Control rod	
rev/min 1	cm³/1000 strokes	rev/min 49	rev/min	cm <sup>3</sup> /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	travel mm	
LDA 650	0,9 bar 156,0-158, (154,0-160,		LDA 1100 LDA 500	0 bar 176,5-179,5 (174,0-182,0 0 bar 133,0-137,0 (131,0-139,0	)	190,0-240,0 =20,0-21,0 mm RW	850	14,0+0, 13,0+0, 13,2+0,	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

SCA 11,0 m 2

-2-

Test at n =

850

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travet- difference
	Gauge pressure ≈ bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 3006 +RQVPA 383 UR	0,90	0 0,40 0,25	14,0-14,1 11,8-11,9 12,9-13,0 11,9-12,1

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

SCA 11,0 y 1

### SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 6.4.1984
- Start of fuel delivery-engine: 20° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Testoil-ISO 4113

## **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 VOL 12,0 c 2

1. Edition

PE 6 P 120 A 320 RS 3032 Y RQV 250-1100 FA 355/2 R

Komb.-Nr. 0 401 846 718

supersedes -

company: Volvo

TD 120 C

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Rotational speed	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm³/ 100 strokes	Control rod travel	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3		2	3	•
700	11,4+0,1	20,1-20,4	0,4(0,8)			2,5 <sup>±</sup> 0,1
250	5,3-5,5	0,9-1,3	0,3(0,6)			(max.2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

### **B. Governor Settings**

Upper rated s	speed		Intermediate	e rated sp	eed	Lower rated	speed		Sliding s	ileeve travel
deflection	rev/min Control	Control rod travel	deflection travel d				Control rod travel	0		
of control lever	rod travel	mm rev/min (28)	of control lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	•	-	-		100 250	min.6,9 5,3-5,5	200 500	0,7-0,9 2,9-3,2
ca. 45	10,4 4,0 1320	1230-1260	)					50=2,0		5,0-5,3 7,7
						<b>3</b>				

Torque control travel a =

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-foad di Control-roo Test oil ten	d stop	Rotational-speed 2b limitation intermediate speed	Fuel deli- high idle s	very characteristics (5e)	Starting Idle switching		Torq <del>ue</del> - travel	Control Control roo
rev/min	cm³/1000 strokes .	rev/min 40	rev/min cm³/1000 strokes		rev/min	cm <sup>3</sup> /1000 strokes	rev/min   mm	
1	2	3	4	5	8	7	8	9
LDA 700	0,9 bar 201,0-204,0 (198,0-207,0		LDA 700	0 bar 148,0-152,0 (145,0-155,0		410,0-460,0 9,0-13,0	•	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.84

**B**3

<sup>\*\*</sup> In case valve-spring spread is higher, change the initial tension accordingly.

VOL 12,0 c ₹

-2-

Test at n =

500

rev/min decreasing pressure ~ in ber gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 PRS 3032 Y +RQVPA 355/2 R	0,49	0,14	11,1-11,2 9,2-9,3
		<b>;</b> .	

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 SCA 8,0 i 1 4. Edition

PE 6 P 110 A 720 RS 3034 Z

RQV 200-1200 PA 554

Komb.-Nr. 0 401 846 770

supersede 3 .84 company:Saab Scania engine: DS8 05

**Testoil-ISO 4113** 

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

13	.25-3.45)	min (nom 60C)			
Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm	cm <sup>3</sup> /100 strokes	100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
2	3	4	2	3	6
11,8+0,1	10,1 - 10,3	0,5(0,7)			25 ± 0,1
5,9-6,1	1,5 - 1,9	0,2(0,4)			(2,2 - 2,9)
	1,0	- (0,4)			
	Control rod travel mm 2 11,8+0,1	Control rod travel  mm cm³/100 strokes 3  11,8+0,1 10,1 - 10,3	Control rod travel Fuel delivery Difference cm <sup>3</sup> /100 strokes 2 cm <sup>3</sup> /100 strokes 4 11,8+0,1 10,1 - 10,3 0,5(0,7)	Control rod travel  mm (rom BDC)  Control rod travel  mm cm³/100 strokes cm³/ 100 strokes 4  11,8+0,1  10,1 - 10,3  0,5(0,7)	Control rod travel  mm cm³/100 strokes 3  Difference cm³/100 strokes 4  Control rod travel  mm cm³/100 strokes 4  Control rod travel  cm³/100 strokes 3  11,8+0,1  10,1 - 10,3  0,5(0,7)

Adjust the fuel delivery from each outlet according to the values in (

### **B. Governor Settings**

Upper rated	peed			Intermediate	rated sp	eed		Lower	rated	speed			Stiding	icave travel
deflection	rev/min Control rod travel	travel \	9	Degree of deflection of control		Contro travel	lrod	Degree deflect of con	tion		Control travel	rod		0
lever		rev/min (	<b>2</b>		rev/min	mm	•	lever		rev/min	mm	3		mm
1	2	3		4	5	6		7		8	9 .		10	11
max.	1220	15,2-17,	8,	-	-		-	ca.	16	100	min.	7,4	150	0 -1,0
ca. 61	10,8 4,0	1240-125 1360-139								225	5,9-	6,1	500 850	,4-3,9 5,4-5,8
	1500	0 - 1,								410-4	70 = 1	2,0	200	7,9
								39					٠.	

Torque control travel a =

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te		intermediate apped	m   m   m   m		idle	fuel delivery (8)	Torque- travel	Control rod
rev/min	cm³/1000 strokes .	rev/min 49	rev/min	cm³/1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 101,0-103,0 (99,0-105,0		LDA 1200 LDA 500	0,9 bar 110,5-115,5 (108,0-118,0) 0 bar 85,0-89,0 (83,0-91,0)	100	190,0-240,0 = 20,0-21,0 mm RW	•	-

Checking values in brackets

\* 1 mm less control rod travel then col. 2

SCA 8,0 i 1

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 PRS 3034 Z + RQVPA 554	0,90	0 0,21	11,8 × 11,9 11,6 - 11,7 11,7 - 11,8

Notes

(1) when n =

rev/min and gauge pressure =

bar ( = maximum full-load control rod travel)

SCA 11,0 y 1

#### SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22.8.1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

WPP 001/4 SCA 11,0 r 7 2. Edition

PE 6 P 110 A 720 RS 3040-1

RSV 350-1100 P 1/505

supersed 12.83 companyScania DS 11 05

Komb.-Nr. 0 401 876 734

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil CO 4113

3,3 - 3,4 (3,25-3,45)

mm (from 8DC, RW = 9,0 - 12,0 mm

Rotational speed rev/min	Control rod travel	Fuel delivery cm1/100 strokes 3	Orfference cm <sup>1</sup> / 100 strokes 4	Control rod travel mm	Fuel delivery cm/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,1+0,1	15,6-15,8	0,6 (0,8)			3,3 <u>+</u> 0,1
350	4,4-4,6	1,8-2,2	0,2 (0,4)			(3,0 - 3,5)
				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

### **B.** Governor Settings

	rated speed		intermed	hate rated	speed	<b>(</b>		rated speed	11 5	rque control
Degree of deflection	Control rod travel	Control rod travel				Control-		Control rod travel		Control rod travel
of control lever	mm	mm rev/min				deflection in degrees	rev/min	mm 9	rev/min	mm 11
3	2	3	•	5	6	<u>'</u>	0	9	10	
lose	800	0,3-1,0	-	-	-	ca. 30	350	4,0	-	-
	X =	6,0					350	4,4 - 4,6		
i i							440-500	= 2.0		
ca. 66	12.1	1140-1150					'''			
	4,0	1210-1240					1			
2	1350	0,3-1,7					i			l

The numbers denote the sequence of the tests

### C. Settings for Fuel Injection Pump with Fitted Governor

	il-lond stop emp 40°C (104°F) cm³/1000 strokes	Rotational- speed limital Note changed to) rev/min	Starting fuel delivery 5 4a Idle stop Idle rev/min cm <sup>3</sup> /1000 strokes rev/min 8					
1100	156,0-158,0 (154,0-160,0)	1140-1159*	700	156,5-161,5 154,0-164,0)		240,0-290, = 20,0 - 21,0 mm RW		4,4-4,6

Checking values in brackets

\* 1 mm less control rod travel than col 2

#### SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 5.10.1983
- Start of fuel delivery-engine: 20° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 d 3
1.Edition

En

PE 6 120 A 320 RS 3050 RQV 250-1100 PA 460 R Komb.-Nr. 0 401 846 720 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 0 67

supersedes

company: Volvo engine: TD 120 F 283 kW

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2, 4-2, 5) mm (from 80C); RW = 9,0-12,0 mm

Rotational speed rev/min		Fuel delivery  cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rad travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,8+0,1	23,0-23,3	0,5(0,9)			2,5±0,1
250	3,6-3,8	1,8-2,3	0,5(0,7)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

### **B. Governor Settings**

Testoil-ISO 4113

Upper rated s			Intermediate	reted sp	eed Control rod	Lower rated Degree of	speed	Control rod	Sliding s	leeve travel
deflection of control	rev/min Control rod travel mm 2	Control rod travel mm rev/min 29	Degree of deflection of control lever	rev/min	travel	deflection of control lever 7	rev/min 8	travel	rev/min 10	mm 11
max.	1175	15,2-17,8	-	-	-	ca. 8			200 500	1,6-1,7 3,1-3,4
ca. 60		1140-1150 1230-1260 0 - 1,0						360=2,0	800 1100	4,9-5,1 7,9
						<b>③</b>				

Torque control travel a =

ma

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro	d stop	Rotational-speed 20 fimitation intermediate speed	Fuel delh high idle s	very cheracteristics (50 peed (50)	Starting kile switching	. 0	Torque-control (5) trevel Control rod		
rev/min		rev/min 49	rev/min cm³/1000 strokes		rev/min 6	cm <sup>3/3</sup> 000 strokes	rev/min 6	travel mm	
LDA 700	1,2 bar 230,0-233,0 (227,0-236,0)	1140-1150*	LDA 700	0 bar 138,0-142,0 (135,0-145,0)		18,0-23,0	•	-	

Checking values in brackets

\* 1 mm less control rod travel then col. 2

VOL 12,0 d 3 - 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6P RS 3050 +RQVPA 460 R	1,20	0 0,82 0,07	12,8-12,9 9,1-9,2 12,6-12,7 9,2-9,4

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

## **Test Specifications** Fuel Injection Pumps 1 PP 001/4 SCA 11,0 s and Governors

Edition

**estoil-ISO 4113** 

PE 6 P 110 A 720 RS3065 Komb.-Nr. 0 401 846 721 ROV 250-1100 PA468R

supersed 83 compan&cania engine: DN 11 01

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 3,30-3,40
Port closing at prestroke (3,25-3,45) mm

· ortonoung orprod		3.23-3.43/						
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6		
1100	12,5+0,1	13,5 - 13,7	,5(0,8)			2,5±0,1 (max.2,2-2,9)		
225	5,8-6,0	0,9- 1,3	0,2(0,4)			(max 62 9 2 - 2 9 7 )		

Adjust the fuel delivery from each outlet according to the values in

### **B.** Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed		Stiding	deeve travel
deflection of control	Control rod travel	(IIII)		Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		0
lever 1	mm 2	rev/min 3	<b>(29)</b>	lever 4	rev/min 5	mm (4)	lever 7	rev/min 8	mm (3)	rev/min 10	11
max.	1100	15,2-17,	8	-	•	•	ca.10	100 225	min.7,3		0,3-1,3
ca.61		1140-115 1250-128 0 - 1,	0						405=2,0	700 120	4,8-5,2 8,2
							<b>②</b>				

Torque control travel a =

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten	d stop	intermediate speed	high idle s	rery characteristics (5a peed (3b)	Starting Idle ewitchle	•	Torque- travel	control (5)
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1100	135, 0-137, 0 (133, 0-139, 0)	1140-1150*	600	131.5-136,5 (129,0-139,0)	100 225	190,0-240,0 15 - 19	•	•

Checking values in brackets

1 mm less control rod travel than cot. 2

#### SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22.8.1983
- Start of fuel delivery-engine: 23° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Testoli-150 4113

WPP 001/4 KHD 15,8 g

4. Edition

Eπ

PE 10 P 110 A 920/5 LS 3073 Komb.-Nr. 0 401 849 702

RQ 300/1150 PA 535

supersed 8.83 company KHD

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2 0-27-72-99-144-171-216-243-288-315° ± 0.5° (± 0.75°) engine BF 10 L 413 F 265 kW/2050 min bzw. 259 kW/2300 min

. 259 kW/23UU m (Maxidynė)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

(2.75-2.95)

mm (from BDC)

		(2),0 2,507				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
800	12,0+0,1	14,4-14,6	0,4(0,75)			
300	6,9-7,1	1,8-2,4	0,4(0,7)			
				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

## **B. Governor Settings**

PRG che	ck Control rod travel	Full-load s Setting po	•	-	cifications (4)	Idle spec	coint Centrel red travel		cifications 5 Control rod	Torque d	Control rod 3
550 VH =	19,2-20,9	3	20,0	9,8 4,0 1350	1195-1210 1220-1250 0-1,0	300	7,0	9 100 300	10		12 10,7-10,9 12,0-12,1

Torque-control travel

o \_\_

1195-1210 min<sup>-1</sup>

mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

			7	idle spee	Carrier .
rev/min cm³/-1000 strokes rev/min 3	rev/min 4	cm³/-1000 strokes 5	- 1	rev/min 6	red travel cm <sup>3</sup> /1000 strokes;/ mm 7
LDA 0,9 bar - 144,0-146,0 (141,0-149,0)	LDA 500	0 bar 98,0-102,0 (95,0-105,0)		100	115,0-145,0 (111,0-149,0)

Checking values in brackets

1.85

BOSCH

ischäftsbernich KM. Kundendienst. Kfz-Ausrüstung. 1980-25 Robert Bosch Gmbić. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany

# D. Adjustment Test for Manifold Pressure Compensator

KHD 15,8 g

- 2 -

Testat n =

500

rev/min decreasing pressure - in bar gauge pressure

Setting  Gauge pressure =	Measurement bar Gauge pressure =	diminution Control rod travel- difference bar mm (1)
0,90	0 0,50 0,35	12,0-12,1 10,0-10,1 11,5-11,6 10,4-10,6
	Gauge pressure =	Gauge pressure = bar Gauge pressure = 0,90 0,50

Notes

(1) when n =

rev/min and gauge pressure =

bar ( = maximum full-load control rod travel)

**Testoil-ISO** 

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 k 2. Edition

En

PE 6 P 120 A 320 RS 3118 RQV 250-1025 PA 657 Komb.-Nr. 0 401 846 772 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 0 67

company: Volvo engine: TD 121 F 282 kW

Alt test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

# A. Fuel Injection Pump Settings

Port closing at pres	troke	(2,55-2,75)	mm (from BDC)	: RW = 9.	0-12.0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference cm <sup>3</sup> /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	ra <b>m</b>	cm <sup>3</sup> / (100 strokes	100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3	4	2	3	6
700	13,3+0,1	23,8-24,1	0,5(0,9)			2,5 ± 0,1
250	3,3-3,5	1,8-2,3	0,5(0,7)			(2,2-2,9)
					ļ.	2
					j	

Adjust the fuel delivery from each outlet according to the values in

## **B.** Governor Settings

Upper rated and Degree of deflection	rev/min	Control rod travel	Intermediate Degree of deffection	rated sp	Control rod	Lower rated Degree of deflection	speed	Control rod	Sliding s	toove travel
of control lever	rod travel		of control	rev/min 5	mm (4)	of control lever 7	rev/min 8	mm 3	rev/min 10	mm 11
max. ca. 65	1090 12,3 4,0 1250	15,2-17,8 1065-1075 1130-1160 0-1,0		-	-	ca. 10	250	min.4,8 3,3-3,5 345=2,0	200 430 660 - 945 1025	0,7-0,9 3,5-3,9 6,4-6,6 7,6

Torque control travel a =

\_ ww

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten	d stop np. 40°C (104°F) 2	Rotational-speed (2b) limitation intermediate speed rev/min (4a)	(3)		idle switchin	_	Torque- travel	Control of travel
,	2	3	4	5	8	7	8	9
LDA 700	0,9 bar 238,0-241,0 (235,0-244,0		LDA 700	0 bar 138,0-142,0 (135,0-145,0		240,0-280,0 = 20,0-21,0 mm RW 18,0-23,0	•	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 k

- 2 -

Test at n

500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 3118 + RQVPA 657	0,90	0 0,77 0,17	13,3 - 13,4 8,5 - 8,6 13,1 - 13,2 8,6 - 8,8

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

# **Test Specifications** Fuel Injection Pumps 1 WPP 001/4 MB 14,6 k 2 and Governors

1. Edition

PE 8 P 120 A 320 LS 3807-10 Komb.-Nr. 0 401 848 762

RQV 300-1150 PA 545-2

supersedes

Daimler Benz company: OM 422 A

1-8-7-2-6-3-5-4 je  $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$ 

243 kW

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

mm (from BDC)

Cy1.8

Sour closing at bues	more (3	,95-4,15)	mm (nom boc)			
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery  cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,5+0,1	15,3-15,5	0,5(0,9)			
300 750	5,2-5,4	1,2- 1,8	0,8(1,2)			
500	٠.	C, Sp 4 u. 5	0,7(1,2)			
			1	1		

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

	peed rev/min Control	Control rod (a	Intermediate Degree of deflection	rated ap	Control rod	Lower rated Degree of deflection	speed	Control rod	Sliding s	sieeve travel
of control	rod travel mm 2		of control lever	rev/min 5	mm (4)	of control lever 7	rev/min B	mm 3	rev/min 10	mm 11
max. ca. 54	9,5 4,0 1350	15,2-17,8 1190-1200 1235-1265 0-1,0		43	-	ca.17	100 300 335-4	min.6,7 5,0-5,2 05= 2,0	300 800 1200 1260	1,6-1,8 6,0-6,2 8,1-8,3 9,9
						<b>3</b>				

Torque controi travel a = 0,6

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		Rotational-speed 20 limitation intermediate speed	Fuel delivery characteristics (5e) high idle speed (50)		Starting Idle switchir	<u> </u>	Torque- travel	Control cod
rev/min	cm³/1000 strokes .	rev/min 49	rev/min	cm <sup>3</sup> /1000 strokes	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min	travel mm
LDA 1150	0,7 bar 153,0-155,0 (150,0-158,0)		LDA 750 LDA 500	0,7 bar 169,0-172,0 (166,0-175,0) 0 bar 139,0-141,0 (136,0-144,0)		140,0-160,0 (136,0-164,0)		10,5+0,1 11,1+0.2

Checking values in brackets

\* 1 mm less control rod travel than col. 2

12.84

net. Kfz-Auerūstung. luttgart 1, Postfach 50. Printed in the Federal Republic of Germany ≪Alemanna par Robert Bosch GmbH.

# D. Adjustment Test for Manifold Pressure Compensator

MB 14,6 k 2

-2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference		
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .		
PE 8 PLS 380%-10 +RQVPA 545-2	<b>0</b> <sup>-</sup>	0,45 0,50	10,3-10,4 10,4-10,5 10,8-11,0		

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 MB 18.3 c 4. Edition

PE 10 P 110 A 320 LS 3818

RQ 300/1150 PA 437-2

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4 0 -27 -72 -99 -144-171-216-243-288-315° + 0,5° (+ 0,75°) supersed7s.84

company Daimler-Benz

engine: 0M 423

261 kW (355 PS)

Komb.-Nr. 0 401 849 705

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

# A. Fuel Injection, Pump Settings

Port closing at prestroke

(3.95-4.15)

mm (from BDCEv1. 10:

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,1+0,1	12,4 - 12,6	0,4 (0,8)			
300	7,9-8,1	1,2 - 2,0	0,4 (0,7)			
600 900	-	C, Sp. 4 u.5	0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in

## **B. Governor Settings**

Checkin	g of slider	Full-load s		Test specifications (4) Setting point   Test specifications (5)				cifications (5)			
rev/min	Control rod travel mm 2			Central red travel rnm 5	rev/min	rev/min 7	Central red travel mm 8	rev/min	Control rod travel mm	rev/min	travel
600	13,0-14,0	600	13,5	10,1 4,0 1350	1190-1205 1225-1255 0 - 1,5	300	6,1	300	min. 9,5 7,9-8,1 470° 2,0	600	11,1+0,1 11,7+0,2 11,6+0,2

Torque-control travel on flyweight assembly dimension a = 0,2

Speed regulation Al 190 - 1205 min<sup>-1</sup>

1 mm less control rod travel

## C. Settings for Fuel injection Pump with Fitted Governor

	elivery on control fever np 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 36	Starting fuel delivery Idle speed Carett		
rev/min	cm <sup>3</sup> /-1000 strokes	rev/min 3	rev/min	cm³/-1000 strokes	rev/min 6	red travel cm <sup>3</sup> /1000 strokes:// mm 7	
1150	124,0-126,0 (121,5-128,5)	•	900	110,0-114,0 (107,0-117,0) 118,0-123,0 (115,0-126,0)	100	140,0-160,0 (136,0-164,0)	

Checking values in brackets

①

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 18,3 d 1 3. Edition

En

PE 10 P 110 A 320 LS 3818-1

RQV 350-1150 PA 678

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4

0 -27 -72 -99 -144-171-216-243-288-315° + 0,5° (+ 0,75°)

supersedes 9.83

company Daimler-Benz

engine OM 423

261 kW (355 PS)

Komb.-Nr. 0 401 849 709

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

# A. Fuel Injection Pump Settings

Port closing at pret	troke	(3.95-4.15)	mm (from BDC)	Zyl. 10		
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strakes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,	1 12,2-12,4	0,4(0,8)			
350 <b>600</b> <b>900</b>	8,5-8,7 -	1,4-2,2 C, Sp. 4 u.5	0,4(0,7) 0,6(0,9)			

Adjust the fuel delivery from each outlet according to the values in

## **B. Governor Settings**

Upper rated s	peed		Intermedia	te rated sp	e <del>e</del> d	Lower rated	speed	Sliding sleeve travel		
deflection	rev/min Control rod travel mm 2	travel	Degree of deflection of control lever	rev/min	Control rad travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	0
max. ca. 64	1200 11,0 4,0 1400	15,2-17, 1190-120 1240-127 0-1,0	5	-	-	ca.14 350-500 30	100 350	min.10,2 8,5-8,7	580	1,2-1,4 3,6-3,9 5,2-5,6 7,8

Torque control travel a =

mm

## C. Settings for Fuel Injection Pump with Fitted Governor

O strokes . re				-witching	g point		control 5	
1	ev/min 40	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	travel mm	
3		4	5	6	7	8	9	
	1190-1200*	600	110,0-114,0 (107,0-117,0)	100	150,0-170,0 (146,0 <b>-1</b> 74,0	600	12,7+0	
		900	11 8,0-123 ,0 (11 5,0-126 ,0)			900	12,4+0.	
•	3,0-124,0 ,0-127,0 ,0-94,0 ,0-97,0)	,0-127,0) ,0-94,0	,0-127,0) ,0-94,0 900	,0-127,0) (107,0-117,0) ,0-94,0 900 118,0-123,0	,0-127,0) (107,0-117,0) ,0-94,0 900 118,0-123,0	,0-127,0) (107,0-117,0) (146,0-174,0 ,0-94,0 900 118,0-123,0	(107,0-117,0) (146,0-174,0) 600 .0-94,0 900 118,0-123,0	

Chucking values in brackets

\* 1 mm less control rod travel than col. 2

\*\* Set at the reduced-delivery stop.

1.85

BOSCH

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 18,3 d 2

1. Edition

PE 10 P 110 A 320 LS 3818-11 Komb.-Nr. 0 401 849 713

RQV 350-1150 PA 678

supersedes

Komb.-Nr. 0 401 849 713

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 4 $0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315° <math>\stackrel{+}{=} 0,5° (\stackrel{+}{=} 0,75°)$  companyDaimler-Benz engine: OM 423

261 kW

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Control rod travel mm 2	Fuel delivery cm <sup>9</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>2</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
12,0+0,1	12,2-12,4	0,4(0,8)			
8,5-8,7	1,4-2,2	0,4(0,7)			]
-	C, Sp. 4 u. 5	0,6(0,9)			
	mm 2 12,0+0,1 8,5-8,7	mm cm <sup>2</sup> /100 strokes  12,0+0,1 12,2-12,4  8,5-8,7 1,4-2,2  - C, Sp. 4 u. 5	travel cm <sup>2</sup> /100 strokes cm <sup>3</sup> / 100 strokes 2 cm <sup>3</sup> / 100 strokes 4 12,0+0,1 12,2-12,4 0,4(0,8) 8,5-8,7 1,4-2,2 0,4(0,7)   - C, Sp. 4 u. 5 0,6(0,9)	travel mm cm <sup>2</sup> /100 strokes 2 12,0+0,1 12,2-12,4 0,4(0,8) 8,5-8,7 1,4-2,2 0,4(0,7) - C, Sp. 4 u. 5 0,6(0,9)	travel mm 2 cm <sup>2</sup> /100 strokes 4 cm <sup>3</sup> / 100 strokes 4 cm <sup>3</sup> / 100 strokes 2 cm <sup>3</sup> /100 strokes 3 cm <sup>3</sup> /100 strokes 2 cm <sup>3</sup> /100 strokes 3 cm <sup>3</sup> /100 strokes 3 cm <sup>3</sup> /100 strokes 3 cm <sup>3</sup> /100 strokes 2 cm <sup>3</sup> /100 strokes 3 cm <sup>3</sup> /100 strokes 4 cm <sup>3</sup> /100 strokes 3 cm <sup>3</sup> /100 strokes 4 cm <sup>3</sup> /100 strokes 3 cm <sup>3</sup> /100 strokes 4 cm <sup>3</sup> /100 strokes 3 cm <sup>3</sup> /100 strokes 4 cm <sup>3</sup> /100 strokes 5 cm <sup>3</sup> /100 strokes 6 cm <sup>3</sup> /100 strokes 7 cm <sup>3</sup> /100 st

Adjust the fuel delivery from each outlet according to the values in

## **B.** Governor Settings

Upper rated	speed		Interme	diate rated sp	eed	Lower rated	speed		Sliding sleeve travel	
Degree of deflection of control lever	rodtravel	travel	Degree deflection of control	on ol	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	(1)
1	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8		-	-	ca. 14		min.10,2	300	1,2-1,4
ca. 64		1190-1200					350	β,5-8,7	580 870	3,6-3,9 5,2-5,6
	1400	1240-1270 0-1,0				B50-500			1150	7,8
						<b>3</b>		:		

Torque control travel a = 0,75 mm

## C. Settings for Fuel Injection Pump with Fitted Governor

rev/min         cm³/1000 strokes         rev/min	Control 5  Control rod travel	Torque- travel	$\sim$	Starting Idle switchir	very characteristics 5e speed (5)	high idle s	limitation intermediate speed		Full-load d Control-ro Test oil ter
(119,5-126,5) 1150 92,0-94,0 900 118,0-123,0 (136,0-164,0) 600 1	mm	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min 49	crh³/1000 strokes .	rev/min
(119,5-126,5) 1150 92,0-94,0 900 118,0-123,0 (136,0-164,0) 600 1	9	8	7	6	5	4	3	2	1
1150   92,0-94,0     900   118,0-123,0	12,7+0,	600				600			1150
(89,5-96,5)	12,3+0,	900			118,0-123,0 (115,0-126,0)	900		(89,5-96,5)	1150

Checking values in brackets

\* 1 mm less control rod travel than col. 2

\*\* Set at the reduced-delivery stop.

1.85

BOSCH

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WPP 001/4 MB 21,9 a 2

2. Edition

PE 12 P 120 A 320 LS 3819

RQ 1050 PA 634-1

supersedes 9\_83

1-5-9-8-3-4-11-10-2-6-7-12

company: Daimler-Benz OM 424 A

0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)<sub>engine</sub> Values only apply to test nozzle-and-holder

385 kW

assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 0 67

Komb - Nr. 0 401 840 715

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Pol

Port closing at prest	roke	(3,95-4,15)	mm (from BDC)	Zyl. 12		
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,9+0,1	18,1-18,3	0,5(0,9)			
300	5,5-5,7	1,4-2,0	0,8(1,2)			
				!	1	
					1	

Adjust the fuel delivery from each outlet according to the values in

## **B. Governor Settings**

Checking of slider PRG check	Full-load s Setting po	•	•	cifications (4)	ldle sper Setting p	_		cifications (5)	Torque d	control 3
rev/min travel mm 2	rev/min 3	Centrel red travel mm	Control red travel mm	rev/min	rev/min	Centrel red travel rnm	rev/min	Control rad travel mm	rev/min	travel
	-	-		1050-1055 1090-1110		-	-	-	-	-

Torque-control travel on flyweight assembly dimension a =

1050-1055 min-1

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop	otop (3a)	Fuel deliv	ery characteristics	(21.)	Starting fuel delivery Idle speed		
rev/min	cm³/-1000 strokes 2	rev/min 3		rev/min 4	cm³/~1000 strokes 5		rev/min 6	red travel crm <sup>3</sup> /1000 strokes:/ mm	
1000	181,0-183,0 (178,0-186,0)	•		-			100	170,0-190,0 (166,0-194,0)	

Checking values in brackets

# **Test Specifications** 2 Fuel Injection Pumps (2) and Governors

WPP 001/4 MB 21,9 a 6

1. Edition

PE 12 P 120 A 320 LS 3819

RQ 900 PA 634-2

supersedes\_

1-5-9-8-3-4-11-10-2-6-7-12

company: Daimler-Benz OM 424 A

0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5 ° (±0,75°) engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Komb.-Nr. 0 401 840 704

#### A. Fuel Injection Pump Settings

4.0-4,1 1.95-4.15) mm (from BDQ)v1. 12 Port closing at prestroke Control rod Rotational speed **Fuel delivery** Difference Control rod Fuel delivery Spring pre-tensioning (torque-control valve) 100 strokes rev/min mm cm<sup>3</sup>/100 strokes mm cm<sup>3</sup>/100 strokes mm 11,8+0,1 18,3-18,5 0.5(0.8)850 300 5,2-5,4 1,2-2,0 0,8(1,2)Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 580 750 067

Adjust the fuel delivery from each outlet according to the values in

## **B.** Governor Settings

**88101100 4113** 

Checkin PRG che	g of slider ock	$\bigcirc$	Full-load : Setting po		-	cifications (4)	Idle speed regulation Setting point   Test specifications (5)			Torque control			
rev/min	Control rod travel mm 2	)	rev/min 3	Control red travel rn/m 4	Control rad travel mm	rev/min 6	rev/min	Control red travel rnm 8	rev/min 9	Control rod	rev/min 11	Control rod travel mm 12	
-	-		1	ı	10,8 4,0 1050	932-942	•	ł	•	-	-	-	

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

900-905 min<sup>-1</sup>

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever onp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	Fuel delivery characteristics			duel delivery
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes 5		rev/min 6	cm <sup>3</sup> /1000 strokes:/ mm
850	183,0-185,0 (180,0-188,0)	•	-	•		100	160,0-180,0 (156,0-184,0)

Checking values in brackets

# **Test Specifications** Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 21,9 a 4

1. Edition

supersedes

RO 750 PA 635 PE 12 P 120 A 320 LS 3819-1

1-5-9-8-3-4-11-10-2-6-7-12

company Daimler-Benz

 $0-15-60-75-120-135-189-195-240-255-300-315^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})_{\text{engine}}$ 

OM 424 A 316 kW

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

Komb.-Nr. 0 401 840 720

tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

# A. Fuel Injection Pump Settings

Port closing at prestroke

(3.95-4.15)

mm (from BDE)y1. 12

Rotational speed rev/min 1	Control rod travel • mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,9+0,1	19,3-19,5	0,5(0,8)			
300	4,9-5,1	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

## **B.** Governor Settings

Checkin		$\bigcirc$	Full-load s Setting po		_	cifications (4)	Idle spec			cifications (5)	Torque d	control
rev/min	Control rod travel mm		rev/min 3	control rod travel rmm	Control rad travel rmm	rev/min	rev/min 7	Control red travel mm 8	rev/min	Control rod travel	rev/min	Iravel
ı	-		•	-	10,9	750-755 780-790	•	•	•	•	-	•
Torque-c	ontrol travel							7!	50-755	min 1		1 mm less cont

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

governor	Full-load delivery on povernor control lever (est oil temp. 40°C (104°F)		Control rod stop  3a Fuel delivery characte			ery characteristics	36)	Starting t	uel delivery	
rev/min 1	cm <sup>3</sup> /~1000 strokes 2		rev/mia 3		rev/min 4	cm <sup>3</sup> /-1000 strokes 5		rev/min 6	rad tract cm <sup>3</sup> /1000 strokes:/ mm 7	
700	193,0-195,0 (190,0-198,0		•		-	•		100	160,0-180,0 156,0-184,0)	

Checking values in brackets

# **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 21,9 b 2

1. Edition

ROV 350-1150 PA 493-3 PE 12 P 120 A 320 LS 3819-1 1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12 0-15-60-75-120-135-180-195-240-255-300-315° ±0,5° (±0,75°) engine OM 424 LA

companyDaimler-Benz

supersedes

Komb. Nr. 0 401 840 719

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

# A. Fuel Injection Pump Settings

Port closing at pres	troke	(3,95-4,15)	mm (from BDC)	RW=9.0-1	2.0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference cm <sup>3</sup> /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
,	2	3	4	2	3	6
1150	12,1+0,1	18,0-18,2	0,5(0,9)			
350	4,8-5,0	1,4-2,0	0,8(1,2)			
Value	s only a	ply to test no	zzle-and-l	older		
assen	bly 1 68	901 019 and f	uel-inject	ion test		
tubir	g 1 680	750 N 67				

Adjust the fuel delivery from each outlet according to the values in [

## **B. Governor Settings**

113 ai

Upper rated s	opper rated speed			rated sp	eed	Lower rated	speed	Sliding sleev travel		
deflection of control	rod travel	Control rod travel mm rev/min 2s	of control	rev/min		Degree of deflection of control lever	rev/min	Control rod travel mm 3		mm
max. ca. 65	1180 11,1 4,0 1350	15,2-17,8 1190-1200 1240-1270 0-1,0	-	-	-	ca. 12 400-600	100 350	min.6,2 4,5-4,7	350 510 1150 1200	2,2-2,3 3,2-3,5 7,5-8,8 9,0

Torque control travel s

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		firmitation intermediate speed			Starting Idle switchli		Torque- travel	Control rod
rev/min	cm <sup>3</sup> /1000 strokes .	rev/min 4a	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	いまな な事を利
1	2	3	4	5	6	7	8	9
LDA 1150 LDA 1150	0,7 bar 180,0-182,0 (177,0-185,0) 0,7 bar 134,0-138,0 (131,0-141,0)		LDA 650 LDA 500	0,7 bar 179,0-185,0 (176,0-188,0) 0 bar 131,0-133,0 (128,0-136,0)	330	150,0-170,0 (146,0-174,0) 4,5-4,7 mm RW	•	-

\* 1 mm less control rod travel than col. 2

Set at the reduced-delivery stop.

# D. Adjustment Test for Manifold Pressure Compensator

MB 21,9 b 2

Testatin -

500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure bar	Gauge pressure - bar	mm (1)
PE12PLS3819-1 + RQVPA493-3	0,70	0 0,54 0,47	12,1-12,2 10,1-10,3 11,4-11,5 10,6-10,8

Notes

(1) when n -

rev/min and gauge pressure =

bar ( - maximum full load control rod travel)

# Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 MB 21,9 d

3. Edition

En

PE 12 P 120 A 320 LS 3819-2 RQ 300/1050 PA 656

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° ±0,5° (±0,75°)
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
tubing 1 680 750 0 67

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke  $\begin{pmatrix} 4,0-4,1\\ (3,95-4,15) \end{pmatrix}$  mm (from BDZy1. 12; RW = 9,0-12,0 mm

		(0,30 1,10)				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	12.7+0.1	19,6-19,8	0,5(0,9)			
300	5,5-5,7	1,4-2,0	0,8 (1,2)	ł		
				:		

Adjust the fuel delivery from each outlet according to the values in

## **B. Governor Settings**

Checkin PRG che	tck (1)	Setting point		ecifications (4)	Idle spec	•		cifications (5)	Torque c	(	3)
rev/min 1	Control rod travel mm		intrel Control ad travel and travel and travel 5	rev/min		Centrel red travel rnm 8		Control rod travel mm 10	rev/min	travel	)
600 VH =	19,1-20,8 max.46	600 2	20,0 11,8 4,0 1300	1165-1195		5,6	300	min.6,0 5,5-5,7 00=2,0	•	•	

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1085-1095 min

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

	delivery on control lever mp. 40°C (104°F)	Control rod stop	Fuel deliv	very characteristics 3b	Starting fuel delivery delivery ldle speed Control		
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min	cm³/~1000 strokes	rev/min 6	red travel cm <sup>3</sup> /1000 strokes:/ mm	
LDA 1050	0,8 bar 196,0-198,0 (193,0-201,0)	-	LDA 500	0 bar 141,0-143,0 (138,0-146,0)	100	170,0-190,0 (166,0-194,0)	

Checking values in brackets

12.84

BOSCH

# D. Adjustment Test for Manifold Pressure Compensator

MB 21,9 d

-2-

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel-
	Gauge pressure <del>-</del> bar	Gauge pressure = bar	difference mm (1)
PE 12 PLS 3819-2 +RQPA 656	0	0,49 0,59	10,7-10,8 11,2-11,4 12,0-12,2
·			

Notes

(1) when n

rev/min and gauge pressure =

bar ( = maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

WWP 001/4 BA0 15,9 b

En

PES 6P 120 A 320 RS 7105

RQV 400-750 PA 730-1

supersedes\_

Komb.-Nr. 0 402 746 803

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

company. Baudouin engine 6 P 15-2 450 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3.55-3.75

mm (from BDC); RW = 9,0 -12,0 mm

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>9</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,2+0,1	41,9-42,1	0,5 (0,9)			
400	4,5-4,7	1,7-2,3	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

## **B. Governor Settings**

Upper rated	speed			Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leeve travel
Degree of deflection of control	rev/min Control rod travel	Control rod travel	9	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		0
lever		rev/min		lever	rev/min	mm (4)	lever	rev/min	mm ③	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
ca.25		750-755 776-789 0 - 1,0	•	•	•	-	ca. 8		4,5-4,7	700	1,1-2,0 2,0 4,3
							<b>3</b>				

Torque control travel a = - min

## C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-roo Test off ten		Rotational-speed 20 Ilmitation intermediate speed	Fuel deli- high idle s	very characteristics (5a poed (50)	Starting Idle awitchli		Torque- travel	control (5)
rev/min	cm <sup>3</sup> /1000 strokes .	rev/min 44	rev/min	cm³/1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
700	419,0-421,0 (416,0-424,0)		-	-	•	-	1	1

Chucking values in brackets

\* 1 mm less control rod travel than col. 2

**(B)** 

# **Test Specifications** Distributor-type Fuel-injection Pump

WPP 001/4 Vol 3,6 g

2. Edition

VE 6/11 F 1500 L 19-6 0 460 416 013

Overflow temperature 45° C

Setting of the pointer at a stroke af 1,0 mm in relation

All test specifications are valid only for Bosch Fuel injection Pump Test Benches and Testers

Test Instructions and Test Equipment

 $0,2 \quad mm \stackrel{+}{=} 0,02 (0,04) \text{ mm}$ 

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1200	2,4-2,8	mm		
1.2 Supply-pump pressure	1200	4,7-5,3	bar (kgf/cm²)		
1.3 Full-load delivery with		1	cm³/1000 strokes		
charge-air pressure Full-load delivery without	1400	69,5-70,5	cm³/1000 strokes		2,5 (3,0)
charge-air pressure  1.4 fdle regulation	350	18,0-22,0	cm³/1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	1550	38,0-44,0	cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 70	cm³/1000 strokes		
1.7 Load-dependent port-closing					

2.1 Timing device	n = rev/min mm	800 0,8-1,6(0,5-1,9) (	1200 1,9-3,3)	1500 3,6-4,4(3,3-4	1,7)	
2.2 Supply pump	n = rav/min bar (kgf/cm²)	400 1,9-2,5		1500 5,7-6,3		
Overflow delivery	n = rev/min cm³/10 s	600 42-83(27-98)		1500 55-138(40-153)		
2.3 Fuel deliveries		15 and delices	I Champ als person	3. Dimens	BIONS for assembly and adjustment	
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	mm	
End stop	1850 1750 1650 1550 1400 1200 600	max. 2,0 max. 3,0 23,5-30,5 (22,5-31,5) (36,5-45,5) (67,4-72,6) 67,0-69,0 (65,4-70,6) 53,5-58,5 (52,6-59,4)		K KF MS SVS	5,9-6,1 1,4-1,6 max.2,3	
	1500			BXL	7,8-11,1	
idie stop	580 500 350	max. 1,5 min. 1,5 (15,5-24,5)		Observations		
End stop	100 120 220	min. 70 min. 70 max. 70				
2.4 Sciencid	max. cut-in voltag	* xxx 10 V *aced voltage 12V.				

200 (1)

Testoil-iSO

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VMA 2,0 d

2. Edition

VE 4/9 F 2150 L 31-1

0 460 494 133

Overflow temperature 45° C

supersedes 8.84 company: Motori VM

HR 488 HT

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

mm

Test Instructions and Test Equipment

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1900	6,4-6,8	mm	0,8	
1.2 Supply-pump pressure	1900	5,7-6,3	bar (kgf/cm²)	0,8	
1.3 Full-load delivery with	1600	46,5-47,5	cm <sup>3</sup> /1000 strokes	0,8	3,0
charge-air pressure Full-load delivery without	600	31,5-32,5	cm <sup>3</sup> /1000 strokes	0	
charge-air pressure 1.4 Idle regulation	400	8,0-12,0	cm <sup>3</sup> /1000 strokes	0	3,0
1.5 Full-speed regulation	2300	27,5-33,5	cm³/1000 strokes	0,8	
1.6 Start	100	min. 44,0	cm³/1000 strokes	0	,.
1.7 Load-dependent port-closing	-				

2. Test Spe	cifications	checking values in brackets ( )			
2.1 Timing device	mm n = rev/min	1000 1,3-2,1(1,0-2,4)	1900 (5,9-7,3)	2150 7,5-8,3(7,2 -8,6)	
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,0-2,6			
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	600 42-83(27-98)	2150 55-138(40-153)		
2.3 Fuel deliveries			,	3. Dimensions tor assembly and adjustment	
Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge air press. bar (kgf/cm²)	Designation mm	
End stop	2600 2450 2300 2150 1600 600 *	max. 2,0 max. 10,0 (26,5-34,5 40,0-43,0 (39,2-43,8 (44,7-49,3 39,3-41,3 (37,6-42,0 (29,8-34,2)	) 0,8 ) 0,8 ) 0,27	KF 3,3 5,7-5,9 MS 0,7-0,9 SVS 5,6	
switch-off				A B	
End stop	800 500 400 350 450	max. 2,0 max. 6,0 min. 44 max. 43	)	* Manifold-pressure compensator stroke = 3,8 mm	
2.4 Solenotá	mex. cut in voltag	^			

2. Test Specifications checking values in brackets (

46

WPP 001/4 PEU 2.5 a

2. Edition

SO 4113

VE 4/9 F 2250 R 84 O 460 494 079

Overflow temperature 45° C

superseded 2.83
company Peugeot
engine XD 3

DHK: 1 688 901 022/130 bar

Test pressure line 6x2x450/1 680 750 073

All test specifications are valid only for Boach Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting

1. Settings	Rat. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	5,4-5,8	mm		
	1500	5,6-6,1	ber (kgf/cm²)		
1.2 Supply-pump pressure	1500	38,9-39,9	cm·/1000 strokes		2,5 (3,0)
1 3 Full-load delivery with charge-air pressure Full-load delivery without	-	-	cm <sup>3</sup> /1000 strokes		
charge air pressure  1 4 Idle regulation	400	6,0-10,0	cm³/1000 strokes	1	2,5 (3,0)
1 5 Full-speed regulation	2325	25,5-31,5	cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 45	cm³/1000 strokes		
1.7 Load-dependent port-closing	1500	-			

2.1 Timing device	n = rev/min mm	700 0,6-1,4(0,		1000 ,1(2,1-3,5)	1500 (4,9-6,3)8,	2000 1-8,9(7,8-9,2
2.2 Supply pump	n = rev/min ber (kgf/cm²)	400 2,1-2,	7		220 7,5-	•
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	400 55-138 (	40-153)		225 55-138	0 (40-153)
2.3 Fuel deliveries Speed control lever	Rot. speed	Fuel delivery   cm <sup>3</sup> /1000 strokes		Charge-air press.	3. Dimen	SIONS for assembly and adjustment mm
End stop	2550 2450 2325 2200 2000 1500 1000 600	max. 2,0 4,5-12,5 40,9-42,9 40,2-42,2 38,2-40,8	(4,5-12,5) (24,5-32,5) (39,6-44,2) (38,9-43,5) (37,1-41,7) (37,2-41,8) (35,3-41,3)	TAMES TOWNS TO SERVICE STATES	K KF MS SVS	K 1 5,2-5,4 0,9-1,2 3,3
switch-off					A B	
End stop	400 440 350 450	max. 2,0 min. 45 max. 45	(4,0-12,0)		Observations	
2.4 Solenoid	max. cut-in volta	xxx min. rated volta	10. V ge 12V.			

**BOSCH** 

WPP 001/4 IBE 4,0 b

1. Edition

Ciliso 4113

VE 4/12 F 1300 R 103-1

0 460 424 017

DHK: 1 688 901 020

Overflow temperature 45° C

supersedes

company: Iberica engine: T 4.236

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

, 3

n ± 0,02 (0,04)

see VDT-W-460/...

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1000	4,0-4,4	mm	0,8	
1.2 Supply-pump pressure	1000	5,5-6,1	bar (kgf/cm²)	0,8	
1.3 Full-load delivery with	800	94,0-95,0	cm³/1000 strokes	0,8	4,0
charge air pressure Full-load delivery without	500	66,0-67,0	cm³/1000 strokes	0	
charge-air pressure	300	6,0-12,0	cm <sup>3</sup> /1000 strokes	0	3,5
1 5 Full-speed regulation	1400	64,0-72,0	cm <sup>7</sup> /1000 strokes	0,8	
1.6 Start	100	min. 70	cm <sup>1</sup> /1000 strokes	0	
1 7 Load-dependent port-closing	-				

		500	1000	1300
2 1 Timing device	n = rev/min			
LDA=0,8 bar	mm	0,4-1,2 (0,1-1,5)	(3,5-4,9)	5,6-6,4 (5,3-6,7)
2 2 Supply pump	n = rev/min	500	1300	
LDA=0,8 bar	ber (kgf/cm²)	3,3-3,9	6,7-7,3	
Overflow delivery	n = rev/min	500	1300	
	cm <sup>3</sup> /10 s	41-83 (26-98)	55-138 (40-	153)

	Cm-/1U 8	41-03 (2	(0-30)	33-130	( "
2.3 Fuel deliveries	-				
Speed control lever	Rot speed rev/min	Fuel delivery cm <sup>2</sup> /1000 strokes		Charge-air press bar (kg1/cm²)	
End stop	1640 1580 1400 1300 800 800* 500	max. 1,0 max. 5,0 84,5-87,5 91,0-92,0	(91,5-97,5)	0,8 0,42	
switch-off					
End stop	430 370 300 110 210	max. 1,0 max. 3,0 min. 70 max. 70	(4,0-14,0)		
2.4 Solenoid	mex. cut-in volta		10 V le 12V.		

3. Dimens	tor assembly and adjustment mm
K	
KF	5,2-5,5
MS	1,1-1,3 5,0
SVS	
A	
В	
	old-pressure sator strol

WPP 001/4 SOF 2,5 L 1. Edition

\_

Stoil-150 4113

VE 4/10 F 2050 R 124-1 O 460 404 041 Overflow temperature 45° C

supersedes company: Iveco-Sofim engine: 8144.81.200

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment

Pre-stroke setting

0,2

mm ± 0,02 (0,04)

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel 1.2 Supply-pump pressure	1500 1500	5,3=5,7 6,1-6,7	mm bar (kgf/cm²)	0,8	
1.3 Full-load delivery with	1500	54,0-55,0	cm³/1000 strokes	0,8	3,0
charge air pressure Full-load delivery without	600	43,5-44,5	cm³/1000 strokes	0	
charge-air pressure 1.4 Idle regulation	350	12,5-16,5	cm <sup>3</sup> /1000 strokes	0	3,0
1.5 Full-speed regulation	2250	37,0-43,0	cm1/1000 strokes	0,8	
1.6 Start	100	min. 60	cm <sup>1</sup> /1000 strakes	0	••
1.7 Load-dependent port-closing	1500	-		0 .	

2. Test Spec	cifications	checking values in brackets (	)		
2.1 Timing device LDA=0,8 bar	n = rev/min mm	0,9-1,7 (0,6-2,0)	1500 (4,8-6,2)	2050 7,6-8,4 (7,3-8,7)	
2.2 Supply pump LDA=0,8 bar  Overflow delivery  n = rev/min cm <sup>2</sup> /10 s		400 3,4-4,0	600 4,0-4,6	2050 7,4-8,0	
		600 41-83 (26-98)	2050 55-138 (40-153)		
<del></del>	L			2 Dimercione	

Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press bar (kgf/cm²)
		(11 0 20 0)	0,8 0,8
	20,3-32,3		
	46.5-49.5		
1500		(51,8-57,2)	
700	47,0-48,0	(44,8-50,2)	0,22
600		(41, 3-46, 7)	0
500	max. 3,0		
450	min. 1,0		
350		(10,0-19,0)	
450	max. 55		
	7430 2350 2350 2300 2250 2050 1500 700 600	7430 max. 2,0 2350 12,0-19,0 2300 26,5-32,5 2250 2050 46,5-49,5 1500 700 47,0-48,0 600 max. 3,0 450 min. 1,0 350 350 min. 55	rev/min

3. Dimeri Designation	SIONS for assembly and adjustment mm
K KF MS SVS	5,7-6,0 1,2-1,4 2,8
A	
9	
compe	old-pressure nsator stroke B mm

BOSCH

eschäftsbereich KH. Kundendienst. Mz-Ausrüstung. 1980 by Robert Bosch OmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany

C10

46

WPP 001/4 PEU 2,3 k 3. Edition

4SO 4143

VE 4/9 F 2075 R 126

0 460 494 121

Overflow temperature 45° C

Test pressure line 6x2x450/1 680 750 073

DHK: 1 688 901 022/130 bar 67

company: Peugeot engine: XD 3 S

All test specifications are valid only for Bosco Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/

Pre-stroke setting mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	5,8 - 6,2	mm	0,8	
•	1500	5,6 - 6,2	bar (kgf/cm²)	0,8	ļ
1.2 Supply-pump pressure 1.3 Full-load delivery with	1500	53,7-54,7	cm <sup>3</sup> /1000 strokes	0,8	(2,5 (3,0)
charge-air pressure Full-load delivery without	500	41,3-42,3	cm³/1000 strokes	0	
charge-air pressure	350	20,0-24,0	cm³/1000 strokes	0	2,0 (3,0)
1.5 Full-speed regulation	2300	26,5-32,5	cm <sup>3</sup> /1000 strokes	0,8	
1.6 Start	100	min. 67,0	cm1/1000 strokes	0	
1 7 Load-dependent port-closing					
	1	l .		L	

2. Test Spe	cifications	checking values in brackets (	)		
2.1 Timing device LDA=0,8 bar	n = rev/min mm	750 0,8-1,6(0,5-1,9	1000 ) 2,5-3,3(2	1500 ,7-3,6) (5,3-6,7)	2000 7,8-8,6(7,5-8,9
	n = rev/min bar (kgf/cm²)	200 1,4-2,0	750 3,4-4,0	2000 7,1-7,7	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)	55	2075 5-138 (40-153)	
		<del></del>		2 Dime	nelone

Speed control lever	Rot. speed rev/min	Fuel delivery cm²/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	2600	max. 1,0		0,8
	2300		(25,5-33,5)	0,8
	2200	39,5-45,5	(38,5-46,5)	0,8
	2000	52,2-54,2	(50,9-55,5)	0,8
	1500		(51,9-56,5)	0,8
	1000	51,8-54,8	(51,0-55,6)	0,8
	750*	46,8-47,8	(45,0-49,6)	0,25
	500		(39,5-44,1)	0
switch-off				
elektr.	400	0		
idle stop	500	max. 1,0		
•	400	8,0-12,0	(6,0-14,0)	
	350		(18,0-26,0)	1
C-d	230	min. 60		
End	330	max. 60		
stop				
2.4 Solenold	mez. cut-in voit	xx min. 1	IQ. V	

3. Dimen	for assembly and adjustment mm
K KF	K 1 5,4-5,7
MS SVS	1,2-1,4
A XK	20,2-22,2
8 XL	9,3-12,6
Observations	
Manifold-p compensato = 4,5 mm Correction	r stroke

BOSCI

adjusting nut. (46)

46

WPP 001/4 PEU 2,3 k 3

2. Edition

Stoil 180 4713

VE 4/9 F 2075 R 126-1

Overflow temperature 45° C

supersedes 84 compan Peugeot

0 460 494 123

Test pressure line 6x2x450/1 680 750 073

engine: XD 3 S

DHK: 1 688 901 022/130 bar

All test specifications are valid only for Bosch Fuel injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	5,8-6,2	mm	0,8	
1.2 Supply-pump pressure	1500	5,6-6,2	bar (kgf/cm²)	0,8	
1.3 Fult-load delivery with	1500	53,7-54,7	cm³/1000 strokes	0,8	(2,5 (3,0)
charge-air pressure Full-load delivery without	500	41,3-42,3	cm³/1000 strokes	0	
charge-air pressure  1.4 Idle regulation	400	17,0-21,0	cm³/1000 strokes	0	2,0 (3,0)
1.5 Full-speed regulation	2350	26,5-32,5	cm³/1000 strokes	0,8	
1.6 Start	100	min. 67,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-				

2. Test Spec	cifications	checking values in brackets (	)		
2.1 Timing device	n = rev/min	750	1000	1500	2000
LDA=0,8 bar	mm	0,8-1,6(0,5-1,9)	2,5-3,3(2,7-3,6)	(5,3-6,7)	7,8-8,6(7,5-8,9
2.2 Supply pump LDA=0,8 bar	n = rev/min ber (kgf/cm²)	200 1,4-2,0	750 3,4-4,0	200 7,1-	-
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)	) 55	2075 -138 (40-1	53)
2.3 Fuel deliveries	J., .,			3. Dime	ensions

Speed control lever	Rot. speed	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press
End stop	2650 2350 2250 2000 1500 1000 750* 500	max. 1,0 38,5-44,5	(25,5-33,5) (37,5-45.5) (50,9-55,5) (51,9-56,5) (50,3-56,3) (45,0-49,6) (39,5-44,1	0,8 0,8 0,8 0,8 0,8 0,8
switch-off				
elektr.	400	0		
idle stop	400 450 550	5,0 - 9,0 max. 3,5	(15,0-23,0) (3,0-11,0)	
End stop	230 330	min. 60 max. 60		
2.4 Solenoid	max. cut-in volta			

3. Dimen Designation	Sions for assembly and adjustment mm
к	К1
KF	5,4-5,7
MS	1,2-1,4
svs	4,6
A XK	20,2-22,2
в ХГ	9,3-12,6
Observations	1
Manifold-	pressure

Manifold-pressure compensator stroke = 4,5 mm
Correction at the adjusting nut. (...)

BOSCH

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

WPP 001/4 PEU 2,3 k 1 2. Edition

VE 4/9 F 2075 R 126-2

Overflow temperature 45° C

supersedes. N/ companyPengeot engine: XD 3 S

0 460 494 155

DHK: 1 688 901 022/130 bar

Test pressure line 6x2x450/1 680 750 073

Test Instructions and Test Equipment

see VDT-W-460/.

Pre-stroke setting 

Charge-air press. bar (kgf/cm²) Settings Difference in Rot. speed 1. Settings delivery cm3 rev/min 1500 5.8-6.2 0,8 1.1 Timing device travel 1500 5,6-6,2 0,8 bar (kgf/cm²) 1.2 Supply-pump pressure 1500 53,7-54,7 0,8 2,5 (3,0) cm³/1000 strokes 1.3 Full-load delivery with charge-air pressure 500 41,3-42,3 cm<sup>3</sup>/1000 strokes Full-load delivery without 20,0-24,0 charge air pressure 350 0 2,0 (3,0) cm<sup>3</sup>/1000 strokes 1 4 Idle regulation 2300 26,5-32,5 0,8 cm<sup>3</sup>/1000 strokes 1.5 Full-speed regulation 100 min. 67,0 0 cm<sup>3</sup>/1000 strokes 1.6 Start 1.7 Load-dependent port-closing

2. Test Spec	dications	checking values in brackets	( )		
2.1 Timing device LDA=0,8 bar	u = usv/min	750 0,8-1,6(0,5-1,9)	1000 2,5-3,3(2,7-3,6)		000 8,6(7,5-8,9
2.2 Supply pump LDA=0,8 bar	n = rev/min ber (kgf/cm²)	200 1,4-2,0	750 3,4-4,0	2000 7,1-7,7	
Overflow delivery	n = rev/min cm³/10 s	500 55-138 (40-153	_	075 8 (40-153)	
A Second deliveration		<u> </u>		3. Dimensi	ons

					-
2.3 Fuel deliveries					
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)	C
End stop	2600 2300 2200 2000 1500 1000 750* 500		(25,5-33,5) (38,5-46,5) (50,9-55,5) (51,9-56,5) (50,3-56,3) (45,0-49,6) (39,5-44,1	0,8 0,8 0,8 0,8	
switch-off					
elektr.	400	o			
End stop	500 400 350 230 330	max. 1,0 8,0-12,0 (6 min. 60 max. 60	5,0-14,0) 18,0-26,0)		N 0
2.4 Solenoid	max. cut in volt	ege xxx min 2 x Nennspannung			

3. Dimen	SIONS for assembly and adjustment mm
K KF	K1 5,4-5,7
MS SVS	1,2-1,4 4,6
A XK B	20,2-22,2
Observations Manifold-p compensato	

 $= 4.5 \, \mathrm{mm}$ Correction at the adjusting nut. (46)

Pulling electromagnet 24 V

undendienst. Kfz-Ausrüstung. I GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Fédérale d'Allemagne par Robert Bosch GmbH.

WPP 001/4 VWW 1,6 V 9

4. Edition

Testoil-ISO

VE 4/9 F 2400 R 138 0 460 494 131

Pre-stroke setting

Overflow temperature 45° C

05:84 supersedeaVWW company: 086 engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

**Test Instructions and Test Equipment** 

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in clelivery cm <sup>3</sup>
1.1 Timing device travel  1.2 Supply-pump pressure  1.3 Full-load delivery with charge-air pressure Full-load delivery without charge-air pressure 1.4 Idle regulation  1.5 Full-speed regulation  1.6 Start  1.7 Load-dependent port-closing	1500 1500 - 1500 475 2600 100	2,9-3,3 4,3-4,9 32,7-33,7 6,0-10,0 11,0-17,0 min. 35	mm bar (kgf/cm²) cm²/1000 strokes cm²/1000 strokes cm²/1000 strokes cm²/1000 strokes	·	2,5 (3,0) 2,0 (3,0)

2. Test Spe	CIIICALIUIIS					
2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (	1,0-2,4) (2	1500 ,4-3,8)	2400 6,1-6,9 (5	
2.2 Supply pump	n = rev/min bar (kgf/cm²)	2,2-	00 2,8		2400 4-7,0	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s		00 B (40-153)		(400 (40–153)	
2.3 Fuel deliveries		<u> </u>			3. Dimer	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment
End stop	2800 2600 2400 1500 600	max. 3,0 27,5-29,5 21,7-24,7	(30,9-35,5)		K KF MS SVS * FH	3,2-3,4 5,7-6,0 1,3-1,5 2,7 1,8-2,4
switch-off					A	
elektr.	400	0			8	
End stop	475 650 1200 400 500	max. 7,5 max. 5,0 min. 18,0 max. 23,5	(4,0-12,0)		*operations	•
2.4 Solenoid	max. cut-in voltage	xxx min.		<u></u>		

BOSC

WPP 001/4 VWW 1,6 W 2

3. Edition

HSO 4113

VE 4/9 F 2400 R 138-1

460 494 140

Overflow temperature 45° C

supersedes 12.83 VWW company: 086

All test specifications are valid only for Bosch Fuel injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting m

see VDT-W-460/...

1. Settings	Rot. speed Settings rev/min		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>	
1.1 Timing device travel	1500	2,9-3,3	mm		
1.2 Supply-pump pressure	1500	4,3-4,9	ber (kgf/cm²)		
1.3 Full-load delivery with	-		cm³/1000 strokes		
charge air pressure Full-load delivery without	1500	32,7-33,7	cm³/1000 strokes		2,5 (3,0)
charge-air pressure 1.4 Idle regulation	450	6,0-10,0	cm³/1000 strokes		2,0 (3,0)
1.5 Full-speed regulation	2600	11,0-17,0	cm³/1000 strokes		
1.6 Start	100	min. 35	cm³/1000 strokes		
1.7 Load-dependent port-closing	-			,	

2. Test Spe	cifications	checking values in brackets (	)	
2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1500 (2,4-3,8)	2400 6,1-6,9 (5,8-7,2)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,2-2,8		2400 6,4-7,0
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	600 55-138 (40-153)		2400 55-138 (40-153)
2.3 Fuel deliveries				3. Dimensions

			į
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm²)
End slop	2000	3 O	
	2800 2600	max. 3,0 (10,0-18	0)
	2400	27,5-29,5 (26,3-30	
	1500	(30,9-35	
	600	21,7-24,7 (20,2-26	
switch-off .	2400	0	
elektr.	400	ŏ	
dle stop	450	(4,0-12,	0)
•	650	max. 5,0	
	1200	max. 7.0	
End	400	min. 18,0	1 1
stop	500	max. 23,5	
2.4 Solenoid	max, cut-in votte	×xx min. 10 V	

3. Dimen	Sions
Designation	for assembly and adjustment mm
	<del></del>
К	3,2-3,4
KF	5,7-6,0
MS	1,3-1,5
svs	2,7
*FH	1,8-2,4
<b>A</b>	
	1
В	
Observations	
*operat	ing
stroke	(KSB)
	•

46

WPP 001/4 VWW 2,4 K 1

2. Edition

0 4113

VE 6/10 F 2150 L 151 0 460 406 039

Overflow temperature 45° C

supersedes VWW company: 087 engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel 1.2 Supply-pump pressure 1.3 Full-load delivery with charge-air pressure Full-load delivery without charge-air pressure 1.4 Idle regulation 1.5 Full-speed regulation 1.6 Start 1.7 Load-dependent port-closing	1500 1500 - 1500 375 2400 100	2,8-3,2 5,5-6,1 28,0-29,0 6,0-10,0 9,0-15,0 min. 35	mm bar (kgf/em²) cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes		max. 2,5 max. 2,0

2. Test Spe	cifications	checking values in brackets (	)		
2.1 Timing device	n = rev/min mm	0,7-1,5 (0,4-1,8)	1500 (2,3-3,7)	2150 4,9-5,7 (4,6-6,0)	
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 3,0-3,6		2150 7,3-7,9	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	600 55-138 (40-153)		2150 55-138 (40-153)	
2.3 Fuel deliveries				3. Dimensions for assembly and adjustment	
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation mm	
End stop	2600 2400 2150 1500 750	max. 3,0 (8,0-16,0 24,0-26,0 (22,7-27) (26,3-30) 25,0-28,0 (23,5-29)	,3) ,7)	K 3,2-3,4 KF 6,4-6,7 MS 1,4-1,6 SVS max.2,6 *FH 1,8-2,4	
switch-off elektr.	400	0		В	
End stop	375 450 400 500	(4,0-12,0 max. 3,0 min. 20,0 max. 28,0	D)	**operating stroke (KSB)	
2.4 Sciencid	max. cut-in volta	e xxx min. 10 V rated voltage 12V.			

BOSCH

WPP 001/4 OPE 2,3 h

2. Edition

VE 4/10 F 2100 L 156

0 460 404 037

Overflow temperature 45° C

supersede pel company: 2,3 TD

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

**Test Instructions and Test Equipment** 

see VDT-W-460/...

Pre-stroke setting

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference In delivery cm <sup>3</sup>
1.1 Timing device travel	1500	5,1-5,5	mm	0,8	
	1500	5,0-5,6	bar (kgf/cm²)	0,8	
1.2 Supply-pump pressure 1.3 Full-load delivery with	1200	58,5-59,5	cm³/1000 strokes	0,8	3,0
charge air pressure Full-load delivery without	500	36,0-37,0	cm³/1000 strokes	0	
charge-air pressure	290	13,5-17,5	cm³/1000 strokes	0	3,0
1.5 Full-speed regulation	2425	15,0-21,0	cm³/1000 strokes	0,8	
t.6 Start	100	min. 48,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	1500			0	
		1			1

2. 1est 5pe	cincations	checking values in t					
2.1 Timing device	n = rev/min mm	800 1,5-2,3(1,2		1200 1,0(3,0-4,4)	1500 (4,6-6,0)	2100 7,9-8,7(7,6-9,	
2.2 Supply pump	n = rev/min bar (kgf/cm²)	500 2,7-3,3 (0	bar) 4,4-5	200 5,0(0,8 bar)	2100 6,4-7,0		
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500(0 55-138 (40-	•		2100 55-138 (	0 (0,8 bar) (40-153)	
2.3 Fuel deliveries					3. Dime	18ions for assembly and adjustment	
Spaed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm	
End stop	2550 2425 2300 2100 1200 800* 500	46,3-48,7	(13,5-22,5) (27,5-36,5) (44,8-50,1) (56,3-61,6) (41,3-46,6) (33,1-39,9)	0,8 0,8 0,8 0,8 0,8 0,3	K KF MS SVS *FH	3,2-3,4 5,7-5,9 0,9-1,1 max.3,0 1,8-2,4	
switch-off	2100				8		
End stop	380 320 290 250 400	max. 2,5 7,0-13,0 min. 50,0 max. 47,0	(5,5-14,5) (11,0-20,0)		Observations Manifold-pressure compensator stroke = 6,2 mm Correction at the adjusting nut. (46)		
2.4 Solenoid	max. cut-in voltag	e XXX min. rated voltage	, 10 V e 12V.		*operati		

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WPP 001/4 FIA 2,7 a

2. Edition

E 3/11 F 1250 L 163-1

Overflow temperature 45° C

03:84 -supersederiat-lveco company 8035.06.200

460 413 002

DHK: 1 688 901 020

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

**Test Instructions and Test Equipment** 

see VDT-W-460/...

Pre-stroke setting

2. Test Specifications checking values in brackets (

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel 1.2 Supply-pump pressure 1.3 Full-load delivery with charge-air pressure Full-load delivery without charge-air pressure 1.4 Idle regulation 1.5 Full-speed regulation 1.6 Start 1.7 Load-dependent port-closing	1000 1000 - 1000 400 1400 100	2,8-3,2 4,7-5,3 64,5-65,5 15,5-19,5 6,5-13,5 min. 80,0	mm bar (kgf/cm²) cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes	·	3,5 (4,0) 3,5 (4,0)

z. rear ope	Cilications		rackets ( )	4000		1250
2.1 Timing device	n = rev/min mm	1,1-1,9 (0	,8-2,2)	1000 (2,3-3,7	') 4,4-5,a	
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,0-2,6			5	1250 ,8-6,4
Ovarflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-	-153)		55-138 (	1250 40-153)
2.3 Fuel deliveries					3. Dimen	Bions for assembly and adjustment
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	mm
End stop	1450 1400 1350 1250 1000 500	max. 1,0 37,0-43,0 61,5-64,5 53,5-56,5	(5,5-14,5) (35,5-44,5) (60,3-65,7) (62,3-67,7) (51,6-58,4)		K KF MS SVS	- 5,1-5,3 1,5-1,7 4,3
switch-off					A B	
Idla stop	·				Observations	1
End	475 425 400 150	max. 1,0 min. 5,0 min. 90,0	(13,0-22,0)			
stop	250	max. 50,0				
2.4 Sølenoid	max. cut-in voltage	xxx min. rated voltag	10 V e 12V.			_

WPP 001/4 VMA 2,2 d 1. Edition

En

つけてい

100:100

Pre-stroke setting

VE 4/10 F 2100 L 168-1 0460 404 042

Overflow temperature 45° C

supersedes Motori VM company HR 492 HJ engine

All test specifications are valid only for Bosch Fuel injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/

		to the second se		4	
1. Settings	Rot speed rev/min	Settings	·	Charge air press bar (kgf/cm²)	Difference in delivery cm <sup>9</sup>
1.1 Timing device travel	1-500	4,6-5,0	mm	0,8	
1.2 Supply-pump pressure	1 500	4,8- 5,4	bar (kgf/cm²)	8,0	
1.3 Full-load delivery with	1 500	58,7-59,7	cm <sup>1</sup> /1000 strokes	0,8	3,0
charge-air pressure Full-load delivery without	600	38,8-39,8	cm <sup>1</sup> /1000 strokes	0	

charge air pressure 13,0-17,0 3.0 400 cm1/1000 stroke 1.4 Idle regulation 27,0-33,0 2 300 8,0 cm<sup>1</sup>/1000 strokes 15 Full-speed regulation 100 40-60 0 cm<sup>1</sup>/1000 strokes 1 6 Start 0 1 500 1 7 Load-dependent port-closing

2. Test Spec	cifications	checking values in brackets ( )	
2.1 Tirs ng device LDA=0,8 bar	n = 18v/min mm	1 000 1 500 1,6-2,4(1,3-2,7) (4,1-5,5)	2 100 ) 7,6-8,4(7,3-8,7)
2.2 Supply pump n = re LDA=0,8 bar  Overflow delivery n = re	n = rev/min ber (kgf/cm²)	400 1,1-1,7	2 100 6,9-7,5
	n = rev/min cm³/10 s		2 100 55-138(40-153)

2.4 Solenoid	max. cut-in voltage		
stop	500	max. 44	
End	400	43 -63	
	600	max. 2,0	
• •	450	2,5-8,5 (1,0-10,0)	1
Idle stop	400	(10,5-19,5)	
switch-off			
	600	61,2-64,2(59,3-66,1)	8,0
	600	(36,6-42,0)	0
	700*	50,3-51,3(48,1-53,5)	0,4
	2 100 1 500	(56, 5-61.9)	8,0 8,0
	2 300	(25,5-34,5) 49,5-52,5(46,5-55,5)	0,8
End stop	2 450	1,5- 8,5 (0,5- 9,5)	0,8
Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)
2.3 Fuel deliveries			

3. Dimen	ISIONS for assembly and adjustment
Designation	mm
к	3,2-3,4
KF	5,2-5,5
MS	0,7-0,9
svs	
A	
8	
Observations	1
	old-pressure isator stroke

BOSCH

WPP 001/4 CUM 5,9 L 1. Edition

Testoil-150 4113

VE 6/12 F 1050 R 173-3 0460 426 058

Overflow temperature 45° C

supersedetmmins company BTA 59 engine:

1 050

**Observations** 

\* Manifold-pressure

= 6.2 mm

compensator stroke

DHK: 1688 901 016 / 207 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

**Test Instructions and Test Equipment** 

Pre-stroke setting

2.1 Timing device

0,3

2. Test Specifications checking values in brackets (

+ 0,02 (0,04)

750

0

max. 1,5

min. 85

max. 85

xxx min. 10 y rated voltage 12V.

375

300

375

450

130

230

max. cut-in voltage

XXXXXXXX

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1 1 7 iming device travel	900	2,0- 2,4	mm	0,75	
1 2 Supply-pump pressure	900	4,1-4,7	bar (kgf/cm²)	0,75	
1.3 Full-load delivery with	750	91,0-92,0	cm³/1000 strokes	0,75	
charge-air pressure Full-load delivery without	500	66,0-67,0	cm³/1000 strokes	0	
charge-air pressure 1 4 Idle regulation	375	18,0-24,0	cm <sup>3</sup> /1000 strokes	0	
1 5 Full-speed regulation	1 100	53,0-61,0	cm³/1000 strokes	0,75	
1 6 Start	100	min. 97	cm <sup>3</sup> /1000 strokes	0	
1 7 Load-dependent port-closing					Ì

900

LDA=0,75 bar	mm	1,3-2,1(1,0-2,4) (1	1,5-2,	9) 2,6-3,4	(2,3-3,7)	
2.2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm²)	200 1,1-1,7	750 3,6-4,		050 -5,4	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138(40-153)		55-138 (	050 40-153)	
2.3 Fuel deliveries	<del>!</del>				3. Dimer	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)_	Designation	and adjustment mm
End stop	1 150 1 100	max. 15 ( 52,0- 62	,0)	0,75 0,75	к	-
	1 050 900	78,5-81,5( 77,0- 83, 85,5-88,5( 84,0- 90,		0,75 0,75	KF	5,2-5,5
	750	(88,5-94,	5)	0,75	MS	1,4-1,6
	600* 500 500	82,5-83,5(80,0-8 102,0-106,0(100,6-10 (63,5-6	77,7)	0,40 0,75	svs	2,4
-					A	
switch-off	1	1	Ī		1 ^	l

49,0- 57,0( 48,0- 58,0)

		C		L
D	V	3	C	11

2.4 Solenoid

End

stop

elektr.

idle stop

(16,0-26,0)

WPP 001/4 PEU 2,1 f

1. Edition

VE 4/9 F 2250 R 174 0 460 494 154

Overflow temperature 45° C

supersede PSA-Mahindra company: XD 4/90

engine:

DHK: 1 6 88 901 022 / 130+ 3 bar Test pressure line

6x2x450/1 680 750 073

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

**Test Instructions and Test Equipment** 

see VDT-W-460/...

e-stroke setting	•	m

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,8-4,2	mm		
1.2 Supply-pump pressure	1500	5,5-6,1	bar (kgf/cm²)		
1.3 Full-load delivery with	-		cm <sup>3</sup> /1000 strokes		
charge-air pressure Full-load delivery without	1500	31,0-32,0	cm³/1000 strokes		2,5
charge-air pressure  1.4 Idle regulation	350	7,0-11,0	cm³/1000 strokes		2,0
1.5 Full-speed regulation	2400	11,0-17,0	cm³/1000 strokes		
1.6 Start	100	min. 50	cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	-				

2. Test Spe	cifications	checking values in brackets (	)	
2.1 Timing device	n = rev/min mm	1000 1,6-2,4 (1,3-2,7)	1500 (3,3-4,7)	2200 6,4-7,2 (6,1-7,5)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,0-2,6	220 7,4-	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s		225 55-138 (	
2 0 South delivered as				3 Dimensions

	Cm-2108		33-136 (4
2.3 Fuel deliveries			
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2500 2400 2350 2200 2000 1500 1000 500	max. 4,0 (10,0-18,0) 21,0-27,0 (20,0-28,0) 34,0-37,0 (32,8-38,2) 33,5-36,5 (32,3-37,7) (28,8-34,2) 29,7-32,7 (28,2-34,2) 30,0-33,0 (28,5-34,5)	
switch-off			
Idle stop	350 400 550	(5,0-13,0) max. 4,0 max. 1,0	
End stop	350 450	min 40 min 44	
2.4 Solenoid	mex. cut-in voite	~ _ ^ ^ ^ _	

2250 B (4	10-153)	
	3. Dimen	SIONS for assembly and adjustment
988.	Designation	mm
	к	3,2-3,4
	KF	5,7-6,0 1,2-1,4
	MS SVS	2,5
	A .	
	В	
	Observations	

**BOSCH** 

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
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WPP 001/4 PEU 2.5 c

1. Edition

Testoil-ISO 4113

VE 4/9 F 2125 R 180-1 0460 494 159

Overflow temperature 45° C

DHK: 1688 901 022/130 + 3 bar

company: FSA-Peugeot

Test pressure line 6x2x450/1 680 750 073 engine: XD 3T-US

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	5,3-5,7	mm	0,8	
1.2 Supply-pump pressure	1500	5,2-5,8	bar (kgf/cm²)	0,8	
1.3 Full-load delivery with	1500	57,0-58,0	cm³/1000 strokes	0,8	2,5 (3,0)
charge-air pressure Full-load delivery without	500	42,0-43,0	cm³/1000 strokes	0	
charge-air pressure 1.4 Idle regulation	430	7,0-11,0	cm³/1000 strokes	0	2,0 (3,0)
1.5 Full-speed regulation	2350	31,0-37,0	cm³/1000 strokes	0,8	
1.6 Start	100	min.65	cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	1500	-		0,8	

2.1 Timing device	n = rev/min	750		1500	2	000
LDA=0,8 bar	mm	0,9-1,7 (	0,6-2,0)	(4,8-6,2)		(7,6-9,0)
2.2 Supply pump LDA=0,8 bar	n = rev/min bar (kgf/cm²)	200 1,1-1,7		750 3,1-3,7	_	000 6-7,2
Overflow delivery	n = rev/min cm³/10 s	500 (0 55-138 (	bar) 40-153	212 55-138	5 (0,8 bar) (40-153)	
2.3 Fuel deliveries					3. Dimens	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	0 . []	Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop  switch-off	2650 2350 2250 2000 1500 1000 750* 500	53,5-56,5	(30,0-38,0) (42,0-50,0) (52,4-57,6) (54,9-60,1) (52,5-58,5) (46,9-52,1) (39,9-45,1)	0,8 0,8 0,8 0,8	K KF MS SVS	3,2-3,4 5,2-5,5 1,2-1,4 4,6
idle stop	430 530 260	max. 3,0	(5,0-13,0)			ld-pressure sator stroke
End stop	360	max. 60			= 7.5	
2.4 Solenoid	max. cut-in voltage	xxxx 10 V	ne 12V.	<u> </u>		

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WPP 001/4 VWW 1,6 W 10

Testoil-ISO 4113

VE 4/9 F 2400 R 185 O 460 494 161

Overflow temperature 45° C

supersedes company:

VW

engine:

086 - 1,6 Lit Jetta/Rabbit-USA

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

**Test Instructions and Test Equipment** 

see VDT-W-460/. .

Pre-stroke setting

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Tirning device travel	1250	2,4-2,8	mm		
1 2 Supply-pump pressure	1250	3,7-4,3	bar (kgf/cm²)		
1.3 Full-load delivery with	-		cm³/1000 strokes		
charge-nat pressure Full-load delivery without	1500	31,5-32,5	cm³/1000 strokes		max. 2,5
charge-air pressure  1.4 Idle regulation	475	6,0-10,0	cm³/1000 strokes	:	max. 2,0
1.5 Full-speed regulation	2690	11,0-17,0	cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 35	cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	1250				

2. Test Spe	cifications	checking values in b	rackets ( )			
2.1 Timing device	n = rev/min mm	800 0,8-1,6 (0	),5-1,9) (1	1250 1,9-3,3)	2400 7,4-8,2 (7,1	-8,5)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,2-2,8	}		2400 6,4-7,0	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	600 55-138 (40	-153)	55-138	2400 (40-153)	
2.3 Fuel deliveries		<del></del>			3. Dimen	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment
End stop	2800 2600 2400 1500 600	1	(10,0-18,0) (25,4-30,6) (29,4-34,6) (19,0-25,0)		K KF MS SVS	3,2-3,4 5,7-6,0 1,3-1,5 3,7
switch-off					^	
elektr.	400	0			8	
End stop	475 650 1200 400 500	max. 6,5 max. 5,0 min. 17 max. 22,5	(4,û-12,0)		Observations	- <b>L</b>
2.4 Solenoid	max. cut-in voltage	xxx min.	10 V : 12V.			

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WPP 001/4 VWW 1,6 W 9

1. Edition

estoil-ISO 4113

Overflow temperature 45° C

supersedes company¥W

engine: 086 T - 1,6 Lit

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/

Pre-stroke setting – mm

VE 4/9 F 2250 R 186

0 460 494 162

Charge-air press. bar (kgf/cm²) Rot. speed rev/min Settings Difference in 1. Settings delivery cm3 2,9-3,3 1250 0,75 1.1 Timing device travel 4,0-4,6 1250 bar (kgf/cm²) 0,75 1.2 Supply-pump pressure 1500 43,5-44.5 cm<sup>3</sup>/1000 strokes 1.3 Full-load delivery with charge-air pressure 0,75 max. 2,5 600 22,5-23,5 cm<sup>3</sup>/1000 strokes Full-load delivery without 0 charge-air pressure 475 6,0-10,0 cm<sup>3</sup>/1000 strokes 0 1 4 Idle regulation max. 2.5 cm3/1000 strokes 2525 9,0-15,0 0,75 1.5 Full-speed regulation cm<sup>3</sup>/1000 strokes 1.6 Start 100 min. 35 0 1.7 Load-dependent port-closing 1250 0

2. lest Spec	cifications	checking values in b	rackets ( )			
2.1 Timing device LDA=0,75 bar	n = rev/min mm	1000 1,8-2,6 (1	,5-2,9)	1250 (2.4-3.8)	2250 6,1-6,9 (5	.8-7.2)
2.2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm²)	600 2,5-		225 6,5-	60	
Overflow delivery	n = rev/min cm³/10 s	600 55-138	(0 bar) 3 (40-153)	55	2250 (0,75 b -138 (40-153	ar) )
2.3 Fuel deliveries					3. Dimens	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2750 2525 2250 1500 1000* 600	max. 3,0 38,0-40,0 33,0-34,0	(8,0-16,0) (36,4-41,6) (41,4-46,6) (30,9-36,1) (20,4-25,6)	0,75 0,75 0,30	K KF MS SVS	3,2-3,4 5,7-6,0 1,2-1,4 3,7
switch-off					^	
elektr.	400	0			В	
End stop	475 1250 400 500	max. 4,0 min. 21 max. 29	(4,0-12,0)			ld-pressure sator stroke
	<del>                                     </del>				Ī	

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max. cut-in voltage

2.4 Solenoid

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xxxx min. 10. V rated voltage 12V

40

WPP 001/4 MB 5,7 s 8 1. Edition

En

PES 6 A 90 D 410 RS 2293 Komb.-Nr. 0 400 876 265 RSV 350-1400 AOC 2002 L

company Daimler-Benz
OM 352
95,6 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke (2, 10-2, 30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>1</sup> /100 strokes 3	Difference cm <sup>17</sup> 100 strokes 4	Control rod travel mm	Fuel delivery cm /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1380	10,0+0,1	6,2-6,3	0,3(0,45)			
350	7,1-7,3	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Testoil-130 411

1 Uppe	r rated speed		Interme	Intermediate rated speed			Lower	rated speed	3 Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm 9		Control rod travel mm	
lose	800	0,3-1,0	-	•	-	ca. 31	350	6,7	-	-	
	х :	= 4,0					100 350	min.19,0 7,1-7,3			
ca. 63	9,0 14 4,0 15 1600 0	420-1430 505-1535 ,3-1,7					560-620 700				

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

<b>②</b> ₽ F1	III-load stop	6 Rotational- speed limitat	6 Rotational- speed limitat 3a Fuel delivery characteristics			uel delivery 5	48 Idle stop		
Test oil to rev/min 1	emp 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3		cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	Control rod travel mm	
1380	61,5-62,5	1420-1430*	-	-	100	14,2-14,8 mm RW	350	7,2	
					1517	3,6-4,6 mm RW			
						HER KW			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

1.85

**BOSCH** 

Geschäftsbereich KM. Kundendienst. Kfg-Ausrüstung. 6- 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

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WPP 001/4 MB 5,7 q 11

1. Edition

E٢

PES 6 A 90 D 410 RS 2293 Komb.-Nr. 0 400 876 329 RSV 350-1100 A0C 2002-1 L

supersedes—
company Daimler-Benz

engine 70 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-130

2,15-2,25 (2,10-2,30)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>1</sup> /100 strokes 3	Difference cm <sup>y</sup> 100 strokes 4	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1090	9,1-9,2	4,8-4,9	0,3 (0,45)			
35ů	7,2-7,4	0,8-1,4	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

1 , , ,	r rated speed Control rod travel mm		interme	diate rated	speed	Control- tever deflection in degrees 7		rated speed Control rod travet mm	3 To rev/min 10	rque control Control rod travel mm
lose	800 x =	0,3-1,0	-		-	ca. 30	100	7,3 min.19,5	1090 800 975	10,2-10,3
ca. 52	8,1 4,0 1300	1130-1140 1190-1220 0,3-1,7		•			350 550-6	7,2-7,4 10 = 2,0		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp. 40°C (104°F)	6 Rotational- speed limitat	30 Ft	uel delivery naracteristics	Starting (	luel delivery (5)	Idle stop		
rev/min	cm³/1000 strokes	changed to ) rev/min 3	rev/min	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm/1000 strokes 7	rev/min 8	travel mm 9	
1090	48,0-49,0 (46,0-51,0)	1130-1140*	800	53,0-55,0 (50,5-57,5)	100	78,0-88,0 (75,0-91,0		•	

Checking values in brackets

\* 1 mm less control rod travel than col 2

1.85

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WPP 001/4 MB 5,7 s 9

1. Edition

En

PES 6 A 90 D 410 RS 2293 Komb.-Nr. 0 400 876 280 RSV 350-1400 AOC 2053 L

supersede \$

company Daimler-Benz

engine 82 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,15-2,25 (2,10-2,30)

mm (from BDC)

		2,10-2,507				•
Rotational speed rev/min	d travel		Cm <sup>3</sup> / 100 strokes	Control rod travel	Fuel delivery cm*/100 strokes	Spring pre-tensioning (torque-control valve)
1380	9,0-9,1	5,1-5,2	0,3(0,45)			
350	7,4-7,6	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Degree of deflection of control lever	r rated speed Control rod travel mm		Intermed	liate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	11 9 /	rque control  Control rod  travel  mm   11
lose	800 x =	0,3-1,7	-	•	-	ca. 29	350 100	7,0 min.19,0	1380 1100 500	9,4-9,6
ca. 61	8,0 3,4 1600	1420-1430 1455-1485 0,3-1,7					350 530-59 700	7,4-7,6 0 = 2,0 max. 1,0		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat		3a) Fuel delivery characteristics		fuel delivery 5	4a Idle stop	
rev/min 1	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to .) rev/ms3	rev/min 4	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
1380	51,0-52,0 (49,0-54,0)	1420-1430*	1000 600	55,5-58,5 (53,5-60,5) 46,0-48,0 (44,0-50,0)	100	73,0-83, (70,0-86, =14,0-14, mm RW	D)	-

Checking values in brackets

1.85

**BOSCH** 

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<sup>\* 1</sup> mm less control rod travel than col 2

WPP 001/4 MB 5.7 q 7 2. Edition

PES 6 A 90 D 410 RS 2293 Z

RSV 350-1300 A 0 B 1101 DL 1101-2L

supersede 3.84 company Daimler-Benz

Komb.-Nr. 0 400 876 257

A O C 1101-2L

OM 352

70 kW (95 PS) Unimog

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25 (2.10-2.30)

mm (from BDC)

Rotational speed	Control rod travel  mm (2) cm1/100 strokes		Difference cm <sup>-//</sup> 100 strokes	Control rod travel mm	Fuel delivery cm <sup>1</sup> /190 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
1300	8,2-8,3	4,5 - 4,6	0,3(0,45)			
350	6,6-6,8	0,8 - 1,4	0,2(0,4)			
						1
		ł				

Adjust the fuel delivery from each outlet according to the values in C

#### **B. Governor Settings**

16 4 1	r rated speed Control rod travel mm		Intermed	diate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	3 To	rque control   Control rod   travel   mm   11
lose	800 x = 5	0,3-1,0	-	•	•		350	6,7	1300 500	8,2-8,3 ·9,6-9,7
ca.64	7,2 4,0 1500	1340-1350 1395-1425 0,3-1,7					100 350 4 50-5	min.19,0 6,6-6,8 0= 2,0	700 1100	9,3-9,5 8,5-8,8

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

<b>2b</b> Fu	ill-load stop	6 Rotational- apeed limitat 3 Fuel delivery characteristics			Starting t	uel delivery 5	4a Idle stop		
Test oil to rev/min 1	emp. 40°C (104°F) cm³/1000 strokes	Note: changed to) rev/min 3	rev/min	cm <sup>y</sup> /1000 strokes 5	rev/min	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1300	44,5-45,5 (42,5-47,5)	1340-1350*	500	42,0-45,0 (40,0-47,0)	100	78,0-88,0 (75,0-91,0	)	-	

Checking values in brackets

\* 1 mm less control rod travel than col 2

Kundendienst Kfz-Ausrüstung h GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal F

WPP 001/4 MB 3,8 g 2 5. Edition

Testoil-ISO 4113

PES 4 A 90 D 410 RS 2294 Komb.-Nr. 0 400 844 047

RQV 300-1425 AB 740 L

superset@s 83 companDaimler-Benz engine: OM 314 62.5 kW (85 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC)

Rotation rev/min 1	nel speed		Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control red travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	)	9,7-9,8	6,3 - 6,4	0,3(0,45)			
300	)	7,5-7,7	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated s	peed			Intermediate	rated sp	<del>ee</del> d	Lower rated	speed		Sliding	leeve travel
deflection	rev/min Control rod travel mm 2	Control rod travel mm :sv/min 3	(a)	Degree of deflection of control fever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min	mm 11
max. ca. 59	1420 8,7 4,0 1700	15,2-17 1455-14 1550-15 0 - 1	65	•	•	-	ca.14 70-520 3	300	min.9,1 7,5-7,7	640·	0,7-1,0 3,2-3,6 5,5-5,7 8,1

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		limitation intermediate speed	Fuel delivery characteristics 5a high idle speed 60		Starting idle switchir	•	Torque- travel	Control rod
rev/min cm³/1000 strokes .		rev/min 4	rev/min	cm³/1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm :
1	2	3	4	5	6	7	8	9
1400	62,5 - 63,5 (60,5 - 65,5)	1455-1465*	8		100	71,0-81,0 (68,0-84,0) = 13,7-14,3 mm RW		•

Checking values in brackets

1 mm less control rod travel then col. 2

Testol-ISC 4713

# Test Specifications Fuel injection Pumps and Governors

WPP 001/4 MB 3,8 m 6 Edition

En

PES 4 A 90 D 410 RS 2294

RSV 350-750 A 0 B 764 L ... A O C 764 L RSV 350-900A O B 764 L supersede 82

company Daimler-Benz engine: OM 314

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(2.10-2.30)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery		Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm³/100 strokes	cm <sup>3</sup> / 100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3	4	2	3	6
700	9,4-9,5	4,7-4,8	0,3(0,45	)		
350	6,7-6,9	0,5-1,1	0,2(0,4)			
	İ					
					<b>'</b>	

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

350-750

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	ed	3 To:	rque control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	800	0,3-1,0	-	-	-	ca: 23	350	6,3	-	-
	x =	3 <b>,7</b> 5				;	350	6,2-6,4		
€a. 35	8,4 4,0 820	750-755 788-801 0,3-1,7								

•• Set idle-speed auxiliary spring at 2 mm control-rod travel.
The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	oad stop	Rotational- speed limitat.		i delivery iracteristics	Starting Idle	fuel delivery	5a Idle stop		
Test oil temp. 40°C (104°F)  rev/min		Note: changed to rev/min 3	rev/min	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm	
700	47,0-48,0 (45,0-5 0,0)	750 <b>-7</b> 55 •	•	•	100	78,0-88,0 (75,0-91,0)	1	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

**B.** Governor Settings

350-900

						220-20				
	r rated speed		Interme	diate rated	speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection	Control rod travel	Control rod travel	l	1		Control-	1	Control rod  :ravel		Control rod
of control lever	mm	mm rev/min		1		deflection in degrees	rev/min	iam.	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 33		16,0				ca. 20	350	7,0	-	-
	830 870	9,0 4.5	witho	ut aux	iliar	spring	1 100 "	in. 19		
چ <b>ع</b> . 35	895 -	905 = 8,3					350 370-430	6,7-7,3 = 2,0		
<b>3</b> 5	930 -	945 = 3.8	with	auxili	arv s	brina	450	0 - 1		
	1000	0,3 - 1,7				9				

# Testoil-ISO 4113

### C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting t	fuel delivery 5		
rev/min	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control rod travel mm 9
850	49,5-50,5 (47,5-52,5)	895-905*			100	14,7-15,3 mm RW	350	7,0

Checking values in brackets

\* 1 mm less control rod travel than col 2

\*\* Set idle-speed auxiliary spring at 2 mm control-rod travel.

#### D. Adjustment Test for Manifold Pressure Compensator.

Test at n =

rev/min decreasing pressure - in bar gauge pressure

Pump/governor		Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
·			

Notes:

(1) when n =

rev/min and

ber (= maximum full-load control rod travel)

En

.. RS 2532

WPP 001/4 KHD 6,1 a 6. Edition

PES 6 A 85 D 410/3 RS 2366 .. RS 2415

RSV 325-1400 A8B 674D, 707D A8C 674D

325-1150 A8B 674D, 707D

4.84 supersedes

KHD company BF 6 L 913

Note page 3

Festoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(1.85-2.05)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm/100 strokes 3	Difference cm <sup>-/</sup> 100 strokes 4	Control rod travel mm 2	Fuel delivery cm /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,4+0,1	8,4-8,5	0,3(0,45)			
325	6,6-6,8	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

RSV 325-1400 A 8 B 674 D, 707 D

Degree of deflection of control lever	r rated speed Control rod travel mm		Interme	diate rated	speed 6	Control- lever deflection in degrees 7		rated speed Control rod travel mm	9	rque control Control rod travel mm
loose	800 x =	0,7-1,0	-	•	•	ca. 21	325 100	6,2 min.19,0	500 1000 1400	13,7-13,8 13,3-13,5 12,4-12,5
ca.71	11,4 4,0 1620	1440-1450 1485-1515 0,3-1,7					325 585-645 700	6,6-6,8 = 2,0 max.1,0		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

9	ill-load stop	6 Rotational- speed limitat	speed limital Characteristics			Starting fuel delivery 5 48 idle stop			
Test oil te rev/min 1	t oil temp 40°C (104°F) Note. changed to )		rev/min	cm¥1000 strokes	rev/min	cmil/1000 strokes	rev/min 8	Control rod travel mm	
LDA Note	0,7 bar page 3	Note page 3	!	0,7 bar page 3 0 bar	100	17,6-18,2 mm RW	325	6,7	
		puge 0	500	60,0-63,0 (58,0-65,0)					

Checking values in brackets

\* 1 mm less control rod travel than col 2

#### **B. Governor Settings**

EP/RSV 325-1150 A8B674D, 707 D

1( • ) • • •	rated speed Control rod travel mm		Interme	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed  Control rod travel mm	3 To	rque control  Control rod  travel  mm
ca. 56	1150 1200 1250	16,0 11,1 5,4	witho	ut aux	iliar	ca. 21 spring	200	19 - 21	1130	0
<b>29</b>	1220 1300 1380	7,5-10,4 1,3-3,6 0,3-1.5	with a	auxili	ary si	ring	325 500 660	5,5-5,8 1,4-3,4 0 -1,5	500	1,0-1,2

#### C. Settings for Fuel Injection Pump with Fitted Governor

	iff-load stop	6 Rotational- speed limitat		el delivery paracteristics	Starting Idle	fuel delivery 5	de idle stop	
rest on to	emp. 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cmV1000 strokes 5	rev/min	cm <sup>3</sup> /1000 strokes	rev/min 8	Control rod travel mm
LDA	0,7 har ructions P.3	s.S.3	S. S LDA 500	0,7 bar eite 3 0 bar 57,5-59,5	100	119,5-129,	5; 325	5,5**

Checking values in brackets

\* 1 mm less control rod travel than col 2

#### D. Adjustment Test for Manifold Pressure Compensator

Test et n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = ber	Measurement  Gauge pressure = bar	diminution Control rod travel- ExXX <b>X被疾病</b> Ex <b>XX</b> mm
all governors	0,38	0,10	0,2 - 0,3 1,6 - 2,0

Notes

(1) when n =

revimin and

ber (= maximum full-load control rod travel)

En

### C. Settings for Fuel Injection Pump with Fitted Governor

	engine p Full-load Control-re Test oil te	delivery	Rotational-speed limitation	Fuel deln	very characteristics	idle switchir	fuel delivery	Intermediate rotational speed Torque-control travel
	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	ten/min mm
	1	2	3	4	5	6	7	8
	BF 6	L 913 - PES	6 A DRS2360	5, 241	5 -F- od	er B-L	eistung bei	. min 1
	1400	88,0 - 90,0	1420	800	80,0 - 83,0	16	0 PS / n =	2800
	1400		1420	800	66,0 - 69,0			2800
			1340	850	88,5 - 90,5	_		2650
	1325		1340	800	82,5 - 85,5			2650
	1325		1340	800	67,5 - 70,5			2650
	1325		1270	800	84.5 - 87.5			2500
1	1250	87,0 - 89,0	12/0	000	04,5 - 07,5	10	0 1 5 7 11	2000
	1250	83,0 - 85,0	1270	800	77,5 - 80,5	14	8 PS / n =	2500
1	1250	81,0 - 83,0	1270	800	75,5 - 77,5			2500
	1200	86,0 - 88,0	1220	800	84,5 - 87,5			2400
1 "	1200		1220	800	68,0 - 71,0		5 PS / n =	2400
1			1180	800	84,5 - 87,5			2330
. •		134,0 - 00,0	1100	000	01,0 0.,0			
	1150	83,5 - 85,5	1165	800	84,5 - 87,5	15	2 PS / n =	2300
	11160	ยะ - 82.0		800	79,0 - 81,0			2300
	1100 1075		1115	800	84,5 - 87,5		7 PS / n =	2200
j .	1075		1090	800				2150
1 -	7 1 3076		1090	800	76,0 - 79,0			2150
1	1 4	10,0 - 00,0	2030		, 0,0			
	1050	76,5 - 78,5	1065	800	73,5 - 76,5	13	0 PS / n =	2100
	1000	82,5 - 84,5	1015	800	84,5 - 87,5			2000
7	1000	77 0 - 79 0	1015	800		13	0 PS / n =	2000
	900		910	800	84,5 - 87,5	12		4
	875	68,0 - 70,0	885	800	66.0 - 69.0			1750
	6/3	00.0 - 70.0	003	000	<del>00,0 - 07,0</del>			

#### PLEASE NOTE

760 760

750 85,0 - 87,0 750 78,0 - 80,0

- \*\* With Liebherr excavators: single-lever control, therefore use shorter screw 1 423 400 031 and set this at 0.3 - 1.0 before the stop.
- 2. LDA adjustment to be carried out according to VDT-W-420/305.
- 3. Dimension H = 22.5 mm = basic setting of LDA.

Checking values in brackets

\* 1 mm less control rod travel than col 2

estoil-ISO

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 19,0 g 1

1. Edition

En

PE 12 A 95 D 610 LS 2449 Komb.Nr. 0 400 640 111

RQV 300-1200 AB 1105-1 L

supersedes

company. KHD

1-4-9-8-5-2-11-10-3-6-7-120-15-60-75-120-135-180-195-240-255-300-315° ± 0,5°(±0,75°) BF 12 L 413 F

326 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

ort closing at prestroke (1, 75 - 1, 95) mm (from i

Rotational speed rev/min 1		Fuel delivery  cm <sup>3</sup> /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm <sup>2</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,0+0,1	10,9 - 11,1	0,35(0,6)			-
300	6,4-6,6	1,1-1,7	0,35(0,55			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated	speed			Intermediate	rated 😜	eed	Lower rated	speed	•	Sliding s	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min 3	(a)	Degree of deflection of control lever		Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	mm 11
max.	1250	15,2-17	7,8	-	-	•	ca. 14	100 300	nin. 8,0 6,4-6,6	250 650	),6-0,9 1,2-4,4
ca. 67	10,0	1240-12 1300-13						300	10,4-0,0	1000 1275	,3-6,5 9,0
	1450	0 - 1,			ļ		315-410				3,0
							<b>②</b>				

Torque control travel a = 0,35 mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter	d stop	Rotational-speed (2) limitation intermediate speed	Fuel deli high idle	very characteristics (50 speed (30)	Starting Idle switchin		Torque-	Control 6
rev/min	cm³/1000 strokes	rev/min 4	rev/min	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min B	travel mm
LDA 1200	0,7 bar 109,0-111,0 (107,0-113,0)	1249-1250 *	LDA 800	0,7 bar 109,5-112,5 (107,0-115,0) 0 bar	100	26,5-136,5 123,5-139,5)	200 500 910 1045	1,0+0,1 1,3+0,1 1,2+0,2 1,0+0,3
			500	84,5-87,5 (82,5-89,5)				

Checking values in brackets

\* 1 mm less control rod travel then cot. 2

### D. Adjustment Test for Manifold Pressure Compensator

KHD 19,0 g 1

Test at n =

500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting  Gauge pressure = bar	Measurement  Gauge pressure = bar	diminution Control rod travel difference mm (1)
	Gauya pressura - Dai	Caugo prossero	
PE 12ALS 2449 + RQV AB 1105-11	0,70	0 0,32 0,22	11,2-11,3 10,4-10,5 10,9-11,0 10,5-10,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WWP 001/4 MAN 9,2 f 1 1. Edition

PES 5 A 95 D 320 LS 2504 Komb.-Nr. 0 400 845 079

RQ 250/1100 AB 1197 R

supersedes

compan MAN

engine: D 2565 MUL

1-3-5-4-2 je  $72^{\circ} + 0.5^{\circ} (+ 0.75^{\circ})$ 

141 KW

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(1.45-1.65)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1 100 250	11.3+0.1 6,4-6,6		0,3(0,6) 0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Checkin PRG che		Full-load (		_	cifications (4)	Idle spec	-		cifications (5)	Torque (	control 3
rev/min	Control rod		Control red travel rriero 4	Control red travel	rev/min	rev/min 7	Control rod travel	rev/min	Control rod	rev/min	travel
600	15,6-16,4	600	16,0		1145-1160 1195-1225 0-1,0	250		100 250 370	min. 8,0 6,4-6,6 410=2,0	600 940	11,3-11,4 11,7-11,8 11,5-11,7 11,4-11,6
			0.40				447	5 115	0 min -1		

Torque-control travel on flyweight assembly dim

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d governor o Test oil ten	elivery on ontrol lever np. 40°C (104°F)	2	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting f	Control
rev/min 1	cm <sup>3</sup> /-1000 strokes 2		rev/min 3	rev/min 4	cm <sup>3</sup> /-1 <b>000 strokes</b> 5	rev/min 6	cm <sup>2</sup> /1000 strokes;/ mm 7
1100	114,0-116,0 (112,0-118,0)		-	800 500	111,0-115,0 (109,0-117,0) 108,5-112,5 (106,5-114,5	100 250	147,0-157,0 (144,0-160,0) = 13,7-14,3 mm RW 6,5 mm RW

Checking values in brackets

2.85

BOSCH STREET

**②** 

# Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 OMB 4,6 b

1. Edition

estoil-ISO 4113

PES 4 A 90 D 410 RS 2518
Komb.-Nr. 0 400 844 073

RO 300/1400 AB 989 DL

supersedes Off Brescia company: 8340.04.200 engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(2.10-2.30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
		7,0 - 7,1	0,3(0,45)			
300	7,9-8,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Checkin PRG che rev/min 1	Control rod	Fulf-load s Setting po rev/min 3	•	•	cifications (4) rev/min 6		Control (not travel (not)			Torque d rev/min 11	Control rod 3
1000	14 <i>2:</i> -15,8	1000	15,0	9,8 4,0 1750	1540-1570		6,0	100 300 450- 600	min.7,5 5,9-6,1 490 = 2,0 max. 1,0	, , <del>, , , , ,</del>	10,8-10,9 10,8-11,0 11,0-11,2
	gue-control travel flyweight assembly dimension a = 0,2			inm	Spe	ed regula	ntion: At	1445-	1460 min		1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics 36	Starting f	el delivery 1 (General	
rev/min 1	cm³/~1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	red tradi cm <sup>3</sup> /1000 strokes;/ mm 7	
1400	69, 5 - 70, 5 (67, 5 - 72, 5)	500	900	64, 5 - 67, 5 (62, 5 - 69, 5)	100	117,0-123,0 (114,0-126,0) = 16,2-16,6 mm	
			600	61,5 - 64,5 (59,0 - 67,0)		RW	

Checking values in brackets



WPP 001/4 MB 5,7 n 5 4. Edition

PES 6 A 90 D 410 RS 2520 Komb.-Nr. 0 400 846 401

RQV 300 - 1425 AB 982 DL

supersedts . 82 companyDaimler Benz engine: OM 352 A 127 kW (172 PS)

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

# A. Fuel Injection Pump Settings 1,80-1,90 Port closing at prestroke (1,75-1,95)

mm (from BDC)

POR CIOSNING BY PROS		/5-1.95/			_	
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	cm³/ 100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3	4	2	3	6
1400	11,5+0,1	7,9 - 8,0	0,3(0,45)			
300	7,5-7,7	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Upper rated s	peed		Intermediat	e rated ap	eed	Lower rated	speed		Sliding s	leeve travel
Degree of deflection of control lever	rev/min Control rod trave mm 2		Degree of deflection of control lover	rev/min	Control rod travel mm 4	Degree or deflection of control lever.	rev/min 8	Control rod travel mm 3 9	rav/min 10	11
max.	1425 10,5 4,0 1700	16,0-19,4 1440-1456 1560-1596 0 - 1,6	5	<del>.</del>	-	ca.10 350-500	570- 800	min.7,4 5,8-6,0 630 =2,0 max.1,0	400 1425	1,4-2,2 8,1

Torque control travel a = 0.5

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed 2b itmitstion intermediate speed	Fuel delic high idle s	rery characteristics (56)	Starting Idle awitchir	•	Torque-control 5 travel 0 1	
rev/min cm³/1000 strokes		rev/min 49	la l		rev/min 6		rev/min 8	mm 9
LDA 1400 800	0,5 bar 79,0 - 80,0 (77,0 - 82,0) 82,0 - 84,0 (80,0 - 86,0)	1440-1450*	LDA 500	0,5 bar 76,0 - 78,0 (74,0 - 80,0) 0 bar 62,0 - 65,0 (60,0 - 67,0)	100	71,0-81,0 (68,0-84,0) = 14,0-14,6 mm RW	1400 1200 1000 600	11,5 11,8 12,1 12,6

Checking values in brackets

\* 1 mm less control rod travel then col. 2

# D. Adjustment Test for Manifold Pressure Compensator MB 5,7 n 5

Test at n =

800

rev/min decreasing pressure - in ber gauge pressure

	XXXXXX		
Pump/governor	Setting	Measurement	diminution Control rod()()(XXXX difference
	Gauge pressure = bar		mm XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
2520 + 982 DL	0,50		12,5 - 12,6
		0,13	12,2 - 12,3
		0,11	11,7 - 11,9
		0	11,5 - 11,6
	•		

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

40

WPP 001/4 KHD 4,1 c 1 2. Edition

En

PES 4 A 80 D 410/3 RS 2523 Komb.-Nr. 0 400 864 044

RSV 325-1400 A 8 B 540DL A 8 C 540 L supersed KHD KHD company F 4 L 912 engine Einbau 2800

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

1,9-2,0 Port closing at prestroke (1,85-2,05)

estoil-ISO 4113

mm (from BDC)

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm <sup>1</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travet mm 2	Fuel delivery cm /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1380	10,2+0,1	5,7-5,8	0,2(0,35)			
325	8,0-8,2	0,9-1,5	0,2(0,3)			7

Adjust the fuel delivery from each outlet according to the values in [

#### **B.** Governor Settings

Degree of deflection of control tever	travel	rev/min  Control rod  travel  mm rev/min  3			Control- lever deflection in degrees 7	Control- lever deflection rey/min		3 To	orque control Control rod travel mm	
lose	800 x=	0,3-1,0	-	•	-	ca.19	325 100	7,6 min.19,5	1380 900	10,2-10,3 .10,8-11,1
ca.67	9,2 4,0 1600	1420-1430 1450-1480 0,3 - 1,7					325 670 - 7	8,0-8,2 30 =2,0	500	11,4-11,5

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	emp 40°C (104°F) cm <sup>3</sup> /1000 strokes 2	Rotational- speed limital Note changed to .) rev/min 3		et delivery eracteristics cm <sup>3</sup> /1000 strokes 5	Starting ( Idle rev/min 6	cm/1000 strokes	•	e stop Control rod travel mm
1380	57,0-58,0 (55,5-59,5)	1420-1430*	•	-	•	-	•	1

Checking values in brackets

\* 1 mm less control rod travel than col. 2

BOSCH

Seschäftsbereich KH. Kundendienst. Kfz-Ausrüstung. C. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Sluttgert 1. Printed in the Federal Republic of Germany.

40

WPP 001/4 KHD 4,1 c 4

1. Edition

PES 4 A 80 D 410/3 RS 2523

RSV 325-1400 A 8 C 1022 L

supersedes .

Komb.-Nr. 0 400 864 046

company KHD F 4 L 912

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

1,9-2,0 (1,85-2,05)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm/100 strokes 3	Difference cm <sup>1</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm/100 strokes 3	Spring pre-tensioning (torque-confrol valve) mm
1400	10,2+0,1	5,7-5,8	0,2 (0,35)			_
325	8,0-8,2	1,0-1,6	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

	r rated speed Control rod travel mm		Intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed  Control rod  travel  mm  9	1 3 1	rque control Control rod travel mm
lose ca. 67	800 x = 9,2 4,0 1600	0,3-1,0 3,5 1440-1450 1470-1500 0,3-1,7		•	=	ca. 20	325 100 325 500-5	5,0 min.19,0 5,4-5,6 60 = 2,0	1400 900 500	

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	M-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting (	uel delivery 5	4a Idle stop	
Test oil te rev/min	emp 40°C (104°F) cm³/1000 strokes	Note: changed 4c .) rev/mith	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes 7	rev/min	Control rod travel mm
1400	57,0-58,0 (55,5-59,5)	1440-1450*	-	-	-		-	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

1.85

**BOSCH** 

Geschäftsbereich KN: Kundendienst KIZ-Ausrustung
c 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuftgart 1. Printed in the Federal Republic of Germany
imprime en Republique Fédérale d'Allemagne par Robert Bosch GmbH.

WPP 001/4 DAF 8,3 i 1

6. Edition

PE 6 A 90 D 410 RS 2524 RSV 250-1200 A 5 B 2012 L Komb.-Nr. 0 400 676 151

DAF DH 825

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2,3-2,4 (2,25-2,45)

mm (from BDC) RW = 7.5-10.5 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>1</sup> /100 strokes 3	Difference cm <sup>1</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,4-9,5	7,1-7,2	0,3 (0,45)			
250	6,5-6,7	0,9-1,5	0,2 (0,4)			
			Port or rod t	closing dit ravel 9 mm	ference betwee and max. = 4,5	n control- -5,5° camshaft

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

1 Uppe Degree of	Control rod	d rev/min   Control rod   travel	Intermediate rated speed			Control- Control travel			3 to	rque control Control rod travel
deflection of control lever 1	mm 2	mm rev/min	4	5	6	lever deflection in degrees 7	rev/min 8	mm 9	rev/min	mm t1
lose	800	0,3-1,0	-		-	ca. 16	250	5,5	1000	9,4-9,5
	x =	3,0					250 580-64	5,9-6,1 0 = 2,0	400 300	9,4-9,6 9,7-10,2
ca.49	8,4 4,0 1480	1240-1250 1260-1290 0,3-1,7					360-0	0 = 2,0	300	3,7010,2

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

(2b) F1	ull-load stop	Rotational- speed limitat	39 f.	uel delivery naracteristics	Starting I	uel delivery 5	4a Idle stop		
Test oil ( rev/min 1	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm <sup>3</sup> /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min 8	Control rod travel mm 9	
1000	71,0-72,0 (69,0-74,0)	1240-1250*	-	-	100	128,0-138, 125,0-141,	0 250 0)	6,6	

Checking values in brackets

\* 1 mm less control rod travel than col 2

1.85

Boschiffsbereich KH Kundendienst Kfz-Ausnüstung.
c 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

WPP 001/4 DAF 8,3 k 1 5. Edition

estoil-ISO 4113

supersedes 5.84 RSV 250-1200 A 5 B 2013 DL PF 6 A 95 D 410 RS 2525, X, Y

company: DAF

See Service Information VDT-I- 420/115

engine:

DN825 (X, Y)

Specifications apply to test tubing 1 680 750 015

DHP/DHTD 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuei Injection Pump Settings

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery  cm³/100 strokes	Difference cm <sup>1</sup> / 100 strokes 4	Control rod travel mm	Fuel delivery  cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	12,6+0,	10,9-11,1	0,35(0,6	)		
250	6,0-6,2	0,7 - 1,1	0,35(0,5	5)		
		POrt closing of and max. = 3 -			control.rod tr	avel 9 mm

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper	rated speed	j	Intermediate	e rated spe	eed	4 Lowe	r rated spe	ed	(3) To	rque control
Degree of deflection of control tever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of dellection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose	800 X	0,3-1,0 4,25		•	•	ca.21	250	5,6		12,6+0,
	^ ·	4,25	1						400	12,8+0,
		-	!				250	6,0-6,2 55 = 2,0	300	13,0+0
⑤ <sup>ca.55</sup>	1230-1 1330-1	240=11,6 360=4,0	1			1	595-6	55 = 2,0		
	1490=0	3-1.7				1				

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-los	ad slop	Rotational- speed limitat.     Sa Fuel delivery characteristics				fuel delivery	5a Idle stop		
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes		Note: changed to rev/min o	rev/min	cm³/1000 strokes	rev/min cm 1/1000 strokes		rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
LDA 1000	0,7 bar 108,5-110,5 (106,5-112,5)		LDA 600			120,0-130,0 117,0-133,0 = 19,5-21,0	, -	-	
X 1000 Y	90,5- 92,5	(12,GmmRV)	600 Y	77,0 - 80,0		mm RW			
1000	99,0-101,0	(12,5mmRW)	600	77,0 - 80,0					

Checking values in brackets

\* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

DAF 8,3 k 1 -

Test at n =

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
2525 + 2013 DL	0,70	0,30 0,26 0	12,6 - 12,7 12,3 - 12,4 11,7 - 11,9 11,5 - 11,6

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 MAN 9,2 i 2

2. Edition

tropicalized version

estoil-150 4113

RQ 250/1100 AB 1039 DL PES 5 A 95 D 410 LS 2543 Komb.-Nr. 0 400 845 044

1 - 3 - 5 - 4 - 20 -72 -144-216-288° - 0,5° (- 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Rotational speed

rev/min

1100

250

supersedes A SE
MAN Company:
Company:
engine: D2565 M/MF
141 kW (192 PS)(1)
MAN-Nr. 1-7933
D 2565 MF-Tropen 134 kW/1500 min
134 kV//1500 min

(2)

xe (1	,45-1,65)	mm (from BDC)	Lyi. 5		
Controt rod ravel •	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery  cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (forque-control valve) mm 6
1,0+0,1	11, 1 - 11,2	0,3(0,6)			
,9-6,1	1,4- 1,9	0,3(0,5)			
					j

Adjust the fuel delivery from each outlet according to the values in

**B.** Governor Settings

(1)

Checkin PRG che	. ( )	Full-load : Setting po	•	•	cifications (4)	Idle spe			cifications (5)	Torque	control
rev/min t	Control red travel mm	rev/min 3	Control red travel mm 4	Control rad travel mm 5	rev/min 6	rev/min	Control red travel rmm 8	rev/min 9	Control rod travel	rev/min	travel
600	15,6-16,4	600	16,0	10,0			6,0	250	min. 7,5 5,9-6,1		11,0+0,1 11,1+0,3
1300	0 - 1,0			4,0	1185-1215			280- 500	440 = 2,0 0 - 1		11,5+0,2 11,8+0,2
orque-c	ontrol travel		0,4				1:	45-11	60 min-1		1 mm less control

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics 3b	Starting fuel delivery Idle speed		
rev/min 1	cm <sup>3</sup> /~1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min	nd travel cm <sup>3</sup> /1000 strokes:/ mm 7	
1100 (7)	111,0 - 112,0 (109,5 - 114,5)		750	106,5 - 110,5 (104,5 - 112,5)	100	150 - 160 bei 15,7 - 16,3 mm RW	
			500	max. 111,5 (113,5)	250	6,0 mm RW	
Manalia -							

Checking values in brackets

Checking	g of slider	Full-load	speed re	gulation		idle spe	ed regul.	tion		Torque	control
PRG che	ck (1)	Setting po	oint	Test spe	cifications $(4)$	Setting p	ooint	Test spe	cifications $(5)$		(3
	Control rod travel mm 2	rev/min	Control red travel rnrn 4	Control rad travel rrnrn 5	rev/min 6	tev/min 7	Control rad travel mm 8	rev/min 9	Control rod travel mm	rev/min	Iravel
600	15,6-16,4	600	16,0	10,0 4,0 1300	1145-1160 1185-1215 0-1,0		6,0	100 250 280- 500	min.7,5 5,9-6,1 440=2,0 0-1,0	965	11,0+0,1 11,1+0,3 11,5+0,2 11,8+0,2
			<u></u>								- ·

Torque-control travel on flyweight assembly dimension a

Speed regulation At

1145-1160 min<sup>-1</sup>

less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control tever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting f	uel delivery
rev/min 1	cm*/-1000 strokes	rev/min 3	rev/min 4	cm³/-1000 strokes	rev/min 6	cm 1/1000 strokes / mm
1100 (2)	108,0-110,0 (107,5-110,5)		750 500	104,0-108,0 (102,0-110,0) 103,0-109,0 (102,0-110,0)	100 250	150,0-160,0 = 15,7-16,3 mm RW 6,0 mm RW

Checking values in brackets

# Testoil-ISO 4113

#### **B.** Governor Settings

Checking PRG che	g of slider ck	Full-load s Setting po	•		cilications (4	N	eed regul point		cifications (5)	Torque (	(3)
rev/min	Control rod travel mm	rev/min	Control red travel mm	Control rod travel rom	rev/min	rev/mii	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod Control
	-	 3	4	3			,	-	10		
									  -		

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop 3	Fuel deliv	ery characteristics	<b>3</b> b	Starting f Idle spee	Contro
rev/min 1	cm³/-1000 strakes	rev/min 3	rev/min 4	cm <sup>3</sup> /~1000 strokes 5		rev/min	rod tr cm <sup>3</sup> /1000 strokes / mm 7
						<u> </u>	

# Test Specifications Fuel Injection Pumps (1)PP 001/4 VOB 7,0 a and Governors . 2. Edition

PE 6 P 100 A 320 RS 256

ROV 250-1200 PA 212/2 R

supersedes 74 compañol vo BM engine: D 70 B

Note sleeve position 36.0 nm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at pres		2,8-2,9	mm (from BDC	)		
Rotational speed rev/min	Control rod travel	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	12,3-13,1	0,5			
600	9 12 15	5,2-6,2 11,1-12,4 16,6-18,2				
200	9	3,2-4,2				

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated s	peed		Intermediat	e raled sp	eed	Lower rated	speed		Stiding sleeve travel	
deflection	rod travel	Control red travel mm rev/min (2)	of control	rev/min	Control rad travet	Degree of deflection of control lever	rev/min	Control rod travel		
1	2	3	4	5	6	7	8	9	10	11
max. ca. 66	1560	15,1-18,2 8,0-13,1 0 - 7,3		-	•		120 250 350 500 570	8,3-10,0 6,2-8,2 3,3-5,4 0 - 2,5	1290	8,2

Torque control travel a =

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten	distop	limitation intermediate speed	Fuel deli- high idle s	very characteristics 5a	Idle	fuel delivery 6	Torque- travel	Control rod	
rev/min	cm³/1000 strokes .	rev/min 40	rev/min	cm³/1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min		
1	2	3	4	5	6	7	8	9	
700	73,0-75,0	1230-1240*	-	-	100	230,0-270,0	-	-	
					225	10,0-16,0			
						•			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

4

WPP 001/4 MAN 9,2 i 3

3. Edition

tropicalized version

PES 5 A 95 D 410 LS 2543

RQ 250/1100AB 1137-3 L

supersedes7 • 04 company. MAN

Komb.-Nr. 0 400 845 065

 $1 - 3 - 5 - 4 - 2 \text{ je } 72^{0} + 0.5^{0} \text{ (+ } 0.75^{0}\text{)}$ 

engine: D 2565 MF (1) 141 kW/2200 min MAN-Nr. 2-7435

D 2565 NF-Tropen 134 EW/1500 min

(2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

(1.45 - 1.65)

mm (from BDCZyl. 5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery  cm <sup>3</sup> /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery  cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100 250	11,0+0,1 6,9-7,1	11,2-11,3 1,4-1,9	0,3(0,6) 0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Checking o		Full-load s Setting po	•	-	cifications (4)	Idle spec			cifications (5)	Torque d	(3)
	control rod ravel		Control red travel rnm 4	Centrel red travel rnm	rev/min	rev/min 7	Control rad travel rnm 8		Control rod travel mm 10	rev/min 11	Control rod (travel
600	15,6-16,4	600	16,0		1145-1160 1185-1215	250	6,0	100 250 355-	min. 7,5 5,9-6,1 395=2,0	100 600 790 955	1,0-11,1 1,8-11,9 1,6-11,8 1,1-11,4

Torque-control travel on flyweight assembly dimension a =

mm

1145-1160 min Speed regulation: At 1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting fuel delivery Idle speed		
rev/min	cm <sup>3</sup> /-1000 strakes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	red travel crm <sup>3</sup> /1000 strokes / mm 7	
1100	111,5-112,5 (109,5-114,5)		750 500	106,5-110,5 (104,5-112,5) max. 111,5 (max. 113,5)	100 250	150,0-160,0 (147,0-163,0) =15,7-16,3 mm RW 6,0 mm RW	

Checking values in brackets

1.85

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung. © 1950 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Allemegne par Robert Bosch GmbH.

B. Gove	rnor Sett	ings		(2)					MAN 9	,2 i 3	
rev/min lrave mm 1 2	ol rod Sett	4	Test spec Control red travel mm 5	rev/min	Idle spec Setting p rev/min 7	Control rod travel mm 8	Test spe rev/min 9	Control rod travel	rev/min	Control rud Itravel mm	
600 15	,6-16,4	600 16,0	1300	1185-1219		6,0	100 250 280- 500	min.7,5 5,9-6,1 440 = 2,0 0-1,0	600 790	11,0+0,1 11,1+0,3 11,6+0,2 11,1+0,3	

Torque-control travel on flyweight assembly dimension a

Speed regulation At 1145-1160 min-1

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever on 40°C (104 F)	Control rod stop 3a	Fuel delivi	ery characteristics 3b	Starting I	Control
revimin	cm <sup>1</sup> /-1000 strakes 2	rev/min 3	rev/min	cm <sup>1</sup> /-1000 strokes 5	rev/min	cm 1/1000 strokes / mm 7
1100 (2)	108,0-110,0 (107,5-110,5)	-	750 500	104,0-108,0 (102,0-110,0) 103,0-109,0 (102,0-110,0)	100 250	150,0-160,0 =15,7-16,3 mm RW 6,0 mm RW

Checking values in brackets

Testoil-ISO 4113

#### **B.** Governor Settings

	hecking of slider Full load speeing check TSetting point		*	_	cifications (4	idle sper Setting p	-		cifications (5)	Torque o	.(3	
rev/min	Control rod travel mm	O	rev/min	Control rod travel rmm	Control rod travel mm	rev/min	rev/min	Control rod travel rmm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
												and the second s
								,				

Torque-control travel on flyweight assembly dimension a =

Speed regulation At

1 mm less control

#### C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp 40°C (104 F)	Control rod stop	Fuel deliv	ery characteristics	/OI \	Starting f Idle spee	Contr
rev/min	cm³/-1000 strokes	rev/min 3	rev/min	cm <sup>3</sup> /-1000 strokes 5		rev/min	cm <sup>3</sup> /1000 strokes / mm 7
						-	

(5)

# Test Specifications Fuel Injection Pumps and Governors

4

WPP 001/4 MB 2,0 g 4

6. Edition

Testoil-ISO 4113

PES 4 M 50 C 320 RS 103 RSF 375/2250 M 19

Komb.-Nr. 0 400 074 978

Sales model

0 400 074 977

En

supersede 1.84 company Daimler-Benz

engine OM 615

44 kW (60 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

170-180 '(1,65-1,85)

mm (from BDC)

18,5-21,5<sup>Control rod travel</sup>

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm³/100 strokes	cm³/100 strokes	mm	cm <sup>-1</sup> /100 strokes	mm
1	2	3	4	2	3	6
1000	12,2 <sup>+0,1</sup>	3,2-3,3	0,25(0,3)			
375 1800 2200	6,4-6,6	0,65-0,75	0,1 (0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

#### **B.** Governor Settings

Lower rated sp	eed		Upper rate	d speed		Variations in control rod travel			
Degree of deliection of control lever	travel	Rotational speed	Degree of deflection of control lever	Control rod travel	Rotational speed		Rotational speed rev/min	Control rod trave	
1	2	3	4	5	6	7	8	9	
13-17 () 2 3 4 5	** - 2.0 7	250 300 375 400 - 20-820		7 11.3-11 6,7-7 9 0-1,0	,5 2200 1 2500 2950	(2) (3) (4) (6)	100 1800 1000 Switching p	min. 20,1 11,7-11,9 12,2-12,3	

#### C. Settings for Fuel Injection Pump with Governor Mounted

Full-load of	lelivery (19)	Full-load speed (8a) regulation	Variations delivery	in fuel (1-)	Starting for	uel delivery	!Difference
rev/min 1	cm³/1000 strokes	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes	rev/min 6	cm³/1033 strokes 7	cm <sup>3</sup> /1000 strokes 8
2200	33,0-35,0 (33,0-36,0)	2500* RW 6,7-7,1	1800 1000	(32,0-36,0)	100 375 2500	min. 53,0 6,5-7,5 (5,5-9,0) 13,0-17,0 (12,0-18,0)	6,0 (2a) 1,0 1,5 2,5 siehe 3,0 Pkt. 8a (6)

Checking values in brackets

Cd - 3 mm less contrologd travel than in Column 2

- Position the idle-speed auxiliary spring at  $n = 400 \text{ min}^{-1}$  so that the control-rod travel is forced further by 0.1 0.2 mm.
- 2. Adjusting the idle control-lever position:

  At 1000 min<sup>-1</sup>, control-rod travel 1,4 1.5 mm
- Testing the idle-speed auxiliary spring shutoff
  Control-lever position 47°. No change in control-rod travel after switching point up to 550 min<sup>-1</sup>.
  Control-lever position 30°. Rotational-speed range 350 min<sup>-1</sup> 450 min<sup>-1</sup>.
- Control lever against idle stop.

  At n = 375 min<sup>-1</sup> and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

40

WPP 001/4 MB 2,0 h

3. Edition

PES 4 M 50 C 320 RS 103

RSF 375/2250 M 20

Komb.-Nr. 0 400 074 976

1-3-4-2=0 - 90-180-270 ±0.5 (0.75°)

Sales model 0 400 074 975 supersedes 12.82

company Daimler-Benz

engine OM 615

42,7 kW (58 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

1,70-1,80 (1,65-1,85)

mm (from BDC)

20 mm

Control rod travel

**Testoil-ISO 4113** 

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	cm <sup>1</sup> /100 strokes	mm	cm 1/100 strokes	mm
1	2	3	4	2	3	6
1000	11,4+0,1	2,95-3,05	0,25(0,3)			
375	6,4-6,6	0,65-0,75	0,10(0,15)			
		}				

Se, uniform delivery according to the values in

Checking values in brackets

#### **B.** Governor Settings

Lower rated sp	eed		Upper rated	sp <del>ee</del> d		Variations in control rod travel			
Degree of deflection of control	Control rod travel	Rotational speed	Degree of deflection of control	Control rod travel	Rotational speed		Rotational speed	Control rod travel	
lever	mm	rev/min	lever	mm	rev/min		rev/min	mm	
1	2	3	4	5	6	7	8	9	
	min. 12,0 6,4-6,6 ** - 2,0			10,7-10,9 7,6-8,0 0,0-1,0	2500 -	(12) (13) (14) (6)	100 1900 1000 Switching po	min. 20,1 10,9-11,1 11,4-11,5	

#### C. Settings for Fuel Injection Pump with Governor Mounted

Full-load d	elivery (19)		Variations delivery		Starting f	uel delivery	
Test oil ter	np 40°C (104°F)			18			Difference
rev/min	cm³/1000 strakes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm³/1000 strokes	cm <sup>3</sup> /1000 strokes
1	2	3	4	5	6	7	8
2200	31,5-33,5 (30,5-34,5)	2500* RW 7,6-8,0	1900 1000	32,0-34,0 (31,0-35,0) 29,5-30,5 (28,5-31,5)	100 375 2500	min. 55,0 6,5-7,5 (5,5-9,0) 17,0-21,0 (16,0-22,0)	6,0 1,0 1,5 2,5See 3,0 Point (5) 8 a

Checking values in brackets

3.0 less control rod travel than in Column 2

01.85

BOSCH

Geschaftspereich KM. Kundendienst. Kfz-Ausrustung.
1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH.

- 1. Position the idle-speed auxiliary spring at n =  $400 \text{ min}^{-1}$  so that the control-rod travel is forced further by 0.1 0.2 mm.
- 2. Adjusting the idle control-lever position:

  At 1000 min<sup>-1</sup>, control-rod travel 1,4 1.5 mm
- Testing the idle-speed auxiliary spring shutoff

  Control-lever position 47°. No change in control-rod travel after switching point up to 550 min-1.

  Control-lever position 30°. Rotational-speed range 350 min-1 450 min-1.
- Testing the pneumatic shutoff box

  Control lever against idle stop.

  At n = 375 min<sup>-1</sup> and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

WPP 001/4 MB 2,2 L

1. Edition

Testol-ISO 4113

PES 4 M 55 C 320 RS 104 RSF 375/2300 M 4 Komb. Nr. 0 400 074 997 supersedes

company Daimler-Benz

OM 615 49 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

1,70-1,80 (1,65-1,85) mm (from BDC)

Control rad travel

18,5-21,5

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm 1/100 strokes	cm 1/100 strokes	mm	cm 1/100 strokes	mm
1	2	3	4	2	3	6
1000	13,0+0,1	3,7-3,8	0,25(0,3)			
375 1600 2300	6,1-6,3	0,65-0,75	0,1 (0,15 0,25(3,0) 0,25(3,0)			

Set uniform delivery according to the values in [

Checking values in brackets

#### **B.** Governor Settings

Lower rated sp	eed		Upper rate	ed sp	eed			Variation	s in co	ntrol rod trav	rel
Degree of deflection of control	Control rod travel	Rotational speed	Degree of deflection of control		Control rod travel	Rota	lional speed			Rotational speed	Control rod travel
lever	mm	rev/min	lever		mm	rev/n	nın			rev/min	mm
1	2	3	4		5	6		7		8	9
11-15 (Q) (Q)			50		12,4-12 9,5 0-1,0	,6	2300 2570 2950		(2) (3) (4) (6)	100 1600 1000 Switching p	min.20,1 12,7-12,9 13,0-13,1

#### C. Settings for Fuel Injection Pump with Governor Mounted

Full-load d	elivery (19)	Full-load speed (8a) regulation	Variations delivery	. ×	1.010	uel delivery	Difference
rev/min 1		rev/min 3	rev/min 4	(18) cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes	cm <sup>1</sup> /1000 strokes 8
2300	38,5-40,5 37,5-41,5)	2570 * RW = 9,5	1600 1000	38,0-40,0 (37,0-41,0) 37,0-38,0 (36,0-39,0)	100 375 2570	min.53,0 6,5-7,5 (6,0-8,0) 15,0-21,0 (14,0-22,0)	6,0 (2a) 1,0 (1,5) (5) 6,0 (3,0) (6)

Checking values in brackets

ca. 3,0 less control rod travel than in Column 2

- 1. Position the idle-speed auxiliary spring at n =  $400 \text{ min}^{-1}$  so that the control-rod travel is forced further by 0.1 0.2 mm.
- 2. Adjusting the idle control-lever position:

  At 1000 min<sup>-1</sup>, control-rod travel 1,4 1.5 mm
- Testing the idle-speed auxiliary spring shutoff
  Control-lever position 47°. No change in control-rod travel after switching point up to 550 min<sup>-1</sup>.
  Control-lever position 30°. Rotational-speed range 350 min<sup>-1</sup> 450 min<sup>-1</sup>.
- Testing the pneumatic shutoff box

  Control lever against idle stop.

  At n = 375 min<sup>-1</sup> and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

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WPP 001/4 MB 2,4 1 1 2. Edition

En

PES 4 M 55 C 320 RS 107-1

RSF 375/2250 M 18

Komb.-Nr. 0 400 074 961

Sales model 0 400 074 958

supersedes 5.83

company Da

Daimler-Benz OM 616

engine 01

53 kW (72) PS

1 - 3 - 4 - 2 0 - 90-180-270

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2,20-2,30 (2,15-2,35)

mm (from BDC)

20 mm

Control rod travel

Testoil-ISO 4113

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	cm <sup>9</sup> /100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3	4	2	3	6
1000	13,4+0,1	3,9-4,0	0,25(0,30)			
375 1800 2200	6,0-6,2	0,6-0,7	0,1 (0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

#### **B.** Governor Settings

Lower rated spe	ed		Upper rated s	peed		Variations in control rod travel			
	Control rod travel	Rotational speed	Degree of deflection of control	Control rod travel	Rotational speed		Rotational speed	Control rod travel	
	നന	rev/min	lever	mm	rev/min	ľ	rev/min	mm	
1	2	3	4	5	6	7	8	9	
	min.11,0 max.10,5 6,0-6,2 ** 2,0	300	50 (7)	0-1,0	2500 -	(2) (3) (4) (6)	1000 Switching p	min. 20,1 12,8-13,0 13,4-13,5	

#### C. Settings for Fuel Injection Pump with Governor Mounted

					Starting fuel delivery Idle			
Test oil terr	p 40°C (104°F)		ļ	(18)			Difference	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	cm <sup>3</sup> /1000 strokes	
1	2	3	4	5	6	7	8	
2200	39,4-41,5 (38,5-42,5)	2500* RW 8,2-8,6	1800	39,0-41,0 (38,0-42,0)	100	min. 53,0	6,0 (2a)	
			1000	39,0-40,0 (38,0-41,0)	375	6,0-7,0 (5,5-9,0)	1,0	
				(33,3 11,30,	2500	23,0-27,0	2 5 See	
						(22,0-28,0)	3,0 Point 6	

Checking values in brackets

ca.4,2 less control rod travel than in Column 2

01.85

**BOSCH** 

Geschaftsbereich KH. Kundendienst. Kf2-Ausrustung.

1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fedérale d'Allemagne par Robert Bosch GmbH.

- 1. Position the idle-speed auxiliary spring at  $n=400 \text{ min}^{-1}$  so that the control-rod travel is forced further by 0.1 0.2 mm.
- 2. Adjusting the idle control-lever position:

  At 1000 min<sup>-1</sup>, control-rod travel 1.4 1.5 mm
- Testing the idle-speed auxiliary spring shutoff
  Control-lever position 47°. No change in control-rod travel after switching point up to 550 min<sup>-1</sup>.
  Control-lever position 30°. Rotational-speed range 350 min<sup>-1</sup> 450 min<sup>-1</sup>.
- 4. Testing the pneumatic shutoff box

Control lever against idle stop.

At  $n = 375 \text{ min}^{-1}$  and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

40

WPP 001/4 MB 3,0 o 1

2. Edition

PES 5 M 55 C 320 RS 108-1

RSF 350/2300 M 15

Komb.-Nr. 0 400 075 991

Sales model 0 400 075 989

supersede5.83
company Daimler-Benz
OM 617 (65 KW)

1 - 2 - 4 - 5 - 3 0 - 72-144-216-288

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,20-2,30 (2,15-2,35)

mm (from BDC)

20 mm

En

Control rod travel

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm³/100 strokes	cm³/100 strokes	mm _	cm³/100 strokes	mm
1	2	3	4	2	3	6
1000	13,4 <sup>+0,1</sup>	3,9-4,0	0,25(0,30)			
350 1800 2200	6,0-6,2	0,6-0,7	0,1 (0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

#### **B. Governor Settings**

Lower rated speed			Upper rated sp	eed		Variations in control rod travel		
Degree of deflection of control	Control rod travel	Rotational speed	Degree of deflection of control	Control rod travel	Rotational speed		Rotational speed	Control rod travel
lever	mm	rev/min	lever	mm	rev/min		rev/min	mm
1	2	3	4	5	6	7	8	9
$\mathbb{X}$	min.10,0 max. 9,5 6,0-6,2 ** - 2,0	300	50 7	0-1,0	2500	(2) (3) (6)	TXUU	min. 20,1 13,0-13,2 13,4-13,5

#### C. Settings for Fuel Injection Pump with Governor Mounted

Full-load delivery (19) Test oil temp 40°C (104°F)		Full-load speed (8a) regulation	LAND TANK			Starting fuel delivery Idle		
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes	rev/min	cm³/1000 strokes	cm <sup>3</sup> /1000 strokes 8	
2200	39,5-41,5 (38,5-42,5)	2500* RW 8,6-9,0	1800 1000	39,0-41,0 (38,0-42,0) 39,0-40,0 (38,0-41,0)	100 350 2500	min. 53,0 6,0-7,0 (5,5-9,0) 23,0-27,0 (22,0-28,0)	6,0 1,0 1,5 2,5 siehe Pkt. 8a (16)	

Checking values in brackets

Ca . 41 mm less control and travel than in Column 2

V 7.0000 E77

**BOSCH** 

Geschäftsbereich KH. Kundendlenst. Kfz-Ausrüstung. C. 1980 by Robert Bosch GmbH, Postfach SO, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imorimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

- Position the idle-speed auxiliary spring at  $n = 400 \text{ min}^{-1}$  so that the control-rod travel is forced further by 0.1 0.2 mm.
- 2. Adjusting the idle control-lever position:

  At 1000 min<sup>-1</sup>, control-rod travel 1.4 1.5 mm
- Testing the idle-speed auxiliary spring shutoff
  Control-lever position 47°. No change in control-rod travel after switching point up to 550 min<sup>-1</sup>.
  Control-lever position 30°. Rotational-speed range 350 min<sup>-1</sup> 450 min<sup>-1</sup>.
- Control lever against idle stop.

  At n = 375 min<sup>-1</sup> and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

## **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 ROL 12,2 d

1. Edition

RQV 250-975 PA 709 PE G P 120 A 320 RS 3129 1-4-2-6-3-5 je  $60^{\circ} \div 0.5^{\circ} (\div 0.75^{\circ})$  Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tuhing 1 680 750 0 67

supersedes = Rolls Royce Eagle III 204 kW

Komb.-Nr. 0 401 846 793

An test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Mark for end of pump delivery 7.5° A. Fuel Injection Pump Settings 5,7-5,8

before end of pump delivery, cyl. 1.

Port closinger lives Rotational speed rev/min		(5,65-5,85)  Fuel delivery  cm <sup>3</sup> /100 strokes	Difference cm³/ 100 strokes	RW=9.0-1 Control rod travel	Fuel delivery  cm³/100 strokes	Spring pre-tensioning (torque-control valve)
900 250	12,7+0, 5,6-5,8		0,5(0,9) 0,8(1,2)		3	

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated s	peed		Intermediate	e rated sp	eed	Lower rated	speed		Sliding s	ieeve travel
deflection of control	Control rod travel	Control rod travel mm rev/min (28	of control	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm (1)
1	2	3	4	5	6	7	8	9	10	11
max.	1040	15,2-17,	-	-	-	ca. 16	100 250	min.7,1 5,6-5,8	200 450	
ca. 66	11,7 4,0	1015-102 1105-113					230	1 3,0-3,0	700 975	
	1250		1		1	355-415	:			
						<b>3a</b>				

Torque control travel a =

#### C. Settings for Fuel injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 20 firmitstion intermediate speed	Fuel delic high idle s	rery characteristics 5e peed 50	Starting Idle switchir	0	Torque- travel	Control rod
rev/min	cm³/1000 strokes .	rev/min	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm³/1000 strokes	rev/min	trav <del>el</del> mm
1	2	3	4	5	6	7	8	9
900	206,0-208,0 (203,0-211,0)		500	188,0-194,0 (185,0-197,0)		200,0-220,0 (196,0-224,0)		-

Checking values in brackets

\* 1 mm less control rod travel than col 2

1.85

0

Testoil-ISO 4113

## Test Specifications Fuel Injection Pumps ② and Governors

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WPP 001/4 MAN 11,1 q

8 . Edition

tropicalized version

PES 6 P 110 A 720 LS 375

RQ 250/1100 PA 335 DR

Komb.-Nrn. 0 402 046 179, 0 402 046 211, 0 402 046 175

supersedes 9,83

company: MAN

engine:

D 2566 MT(F) (1) 206 kW (280 PS)

MAN-Nr.1-7979 D 2566 MTF-Trope

D 2566 NTF-Troper 196 kW/1500 min

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

(2)

#### A. Fuel Injection Pymp Settings

Port closing at prestroke

(2,95-3,15)

mm (from BDC)Zy1.6; RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,4+0,1	14,6-14,9	0,4(0,75			
250	7,3-7,5	1,0-1,5	0,45(0,7	5)		
	Į.					

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Control rod	Centrel		Setting point	Test specifications (5)	(3)
rev/min travel mm	rev/min mm	Central red travel rev/min	rev/min R	Control rod travel mm 9	Control rod travel mm
600 19,2-20,8 VH = max. 46°	600 20,0	11,4 4,0 1190-1220 1350 0-1,0	250 7,4	100 min.8,9 250 7,3-7,5 355-395 = 2,0	1100 12,4-12,5 700 13,3-13,4 870 13,0-13,2 970 12,5-12,8

Torque-control travel on flyweight assembly dimension a =

- mm

Speed regulation: At

1 mm less control

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting f	uel delivery 6
rev/min 1	cm³/-1999 strokes	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes	rev/min	cm <sup>3</sup> /1000 strakes/ mm
LDA 1100 LDA 700	0,7 bar 147,0-149,0 (143,5-151,5) - 0,7 bar 157,0-161,0 (154,0-164,0)	•	LDA 500 LDA 500	0,2 bar 123,0-127,0 (120,0-130,0) 0 bar 110,0-113,0 (107,5-115,5)	100	225,0-245,0 221,0-249,0)

Checking values in brackets

1.85

BOSCH

Checking of slid		II foad speed re Iting point	•	ofications (4)	ldle spee Setting p	-		cifications (5)	Torque c	(3)
Confront travel rev/min 2		Control rod (clave) mm 4	Control rod travel rnm 5	rev/min	rev/min 7	Control rad travel rnm 8		Control rod travel mm		Control rod travel mm
600 19 VH = max	,2-20,8 60 . 46°			1145-1160 1190-1220 0 - 1,0		7,4	250	min. 8,9 7,3-7,5 95 = 2,0		12,4-12,5 13,3-13,4 13,0-13,2 12,5-12,8

Torque-control fravel on flyweight assembly dimension a

0,2

Speed regulation At 1145-1160 min

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np 40°C (104 F)	Control rad stop  (3a)	Fuel deliv	ery characteristics 3b	Starting fi Idle spee	uel delivery
rev/min	cm <sup>1</sup> /- 1000 strokes	rev/min 3	rev/min	cm <sup>-</sup> /- 1000 strokes 5	rev/min	red travel cm <sup>1</sup> /1000 strokes / mm 7
(2) LDA 1100 LDA 700	0,7 bar 139,0-141,0 (138,0-142,0) 0,7 bar 150,0-154,0 (147,0-157,0)	-	LDA 500 LDA 500	0,2 bar 115,0-119,0 (112,0-122,0) 0 bar 103,0-107,0 (101,0-111,0)	100	215,0-235,0 (211,0-239,0)

Checking values in brackets

## Testoil-ISO 4113

### D. Adjustment Test for Manifold Pressure Compensator

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting '	Measurement	diminution Control rod travel - difference
	Gauge pressure = bar	Gauge pressure - bar	mm (1)
PES 6 P LS 375 + RQ PA 335 DR	0,70	0 0,20 0,32	13,3-13,4 11,3-11,4 11,8-11,9 12,6-12,8

Notes

(1) when រា ÷

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

En

## Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,1 q 19 3. Edition tropicalized version

En

PES 6 P 110 A 720 LS 375

RQ 250/1100PA 658

supersede 5 · 84 company: MAN

Komb.-Nr. 0 402 046 251 0 402 046 253 0 402 046 297 D 2566 MT (F) (†) 206 kW (280 PS) MAN-Nr. 2-7499 D 2566 MTF-Trope

D 2566 MTF-Tropen 196 kW/1500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.95-3.15)

mm (from BDC)Zy1. 6: RW = 9.0-12.0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference cm <sup>3</sup> /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	190 strokes	mm	cm <sup>3</sup> /100 strokes	മ്പ
1	2	3	4	2	3	6
1100	12,4+0,1	14,6-14,9	),4(0 <i>3</i> 5)			
250	7,3-7,5	1,1-1,6	0,45(0,75	)		
					1	

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

PRG che	ck Control rod I travel	Full-load : Setting po rev/min 3		_	rev/min	Idle spec Setting g rev/min 7	Control   red travel			Torque ( rev/min 11	Control rod (3)
600 VH	19,2-20,8 = max. 46°	600	20,0	11, 4,0 1350	1145-1160 1190-1220 0-1,0		7,4	100 250 355-3	min.8,9 7,3-7,5 95 = 2,0	1100 700 880 990	12,4-12,5 13,3-1 3,4 13,1-13,3 12,6-12,9

Torque-control travel on flyweight assembly dimension a =

0,3

1145-1160 min-1

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de governor c Test oil terr		Control rad stop	Fuel deliv	ery characteristics	Starting f	d Contra
rev/min ş	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes;/ mm 7
LDA 1100 LDA 700	0,7 bar 146,0-149,0 (143,5-151,5) 0,7 bar 157,0-161,0 (154,0-164,0)		LDA 500 LDA 500	0,2 bar 123,0-127,0 (120,0-130,0) 0 bar 110,0-113,0 (107,5-115,5)	100	215,0-225,0 211,0-229,0)

Checking values in brackets

Checkin PRG che	ng of slider	Full load: Setting p	•	-		idle sper Setting p	_	_	cifications (5)	Torque (	(3)
rev/min 1 &	Control rod travel mm	rev/min	Control red travel rmm	Control red travel rnm 5	rev/min 6	rev/min 7	Control red travel rmm 8	rev/min 9	Control rod travel mm	rev/min	travel
600 VH =	19,2-20,8 max. 46°	600	20,0	11,4 4,0 1350	1145-1160 1190-1220 0-1,0	250	7,4	250	min. 8,9 7,3-7,5 95 = 2,0	700 870	12,4-12,5 13,3-13,4 13,0-13,2 12,5-12,8

Torque-control travel on flyweight assembly dimension a -

0,2 mm

Speed regulation At

1145-1160 min-1

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control fever np 40°C (104 F)	Control rad stop 3a	Fuel deliv	ery characterishes (3b)	Starting fi Idle spee	uel delivery 6
rev/min 1	cm <sup>1</sup> /-1000 strokes	rev/min 3	rev/min 4	cm*/~1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes / mm 7
(2) LDA 1100 LDA 700	0,7 bar 139,0-141,0 (138,0-142,0) 0,7 bar 150,0-154,0 (147,0-157,0)	<b>.</b>	LDA 500 LDA 500	0,2 bar 115,0-119,0 (112,0-122,0) 0 bar 103,0-107,0 (101,0-111,0)	100	215,0-235,0 (211,0-239,0)

Checking values in brackets

## Testoil-ISO 4113

#### D. Adjustment Test for Manifold Pressure Compensator

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting :  Gauge pressure = bar	Measurement  Gauge pressure = bar	diminution Control rod travel- difference mm (1)
PES 6 PLS 375 + RQPA 335 DR	0,70	0 0,20 0,32	13,3 - 13,4 11,3 - 11,4 11,8 - 11,9 12,6 - 12,8

Notes:

(1) when n = **E** n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

### **Test Specifications** Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 11,1 q6

4. Edition tropicalized version

PES 6 P 120 A 720 LS 388

RO 250/1100 PA 452

Komb.-Nr. 0 402 046 195 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersed§s.83 companyMAN engine: D 2566 MK (F) 235 kW (1)

D 2566 MKF-Tropen 224 kW (2) MAN-Nr. 1-7980

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings
3,0-3,1
Port closing at prestroke
(2,95-3,15)

mm (from BUC)ZY1. 6

		(2,95-3,15)				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery  cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
750	13,1+0,	21,7-22,0	0,5(0,9)			
250	6,3-6,	1,1-1,7	0,8 (1,2			

Adjust the fuel delivery from each outlet according to the values in

**B. Governor Settings** 

(1)

Checking of a PRG check	ntider 1	Full-load s Setting po	•		cifications (4)	idle spec			cifications (5)	Torque	control (3)
Con trav rev/min mm 1 2		1	Control red travel rnm	Central red travel rnm	rev/min	rev/min	Cantrel red travel corro is	rev/min 9	Control rod travel mm	rev/min	travel
	9,2-20,8 ax. 46	600		10,3 4,0 1400	1145-1160 1185-1215 0 - 1,0		6,4		min. 7,9 6,3-6,5 90 = 2,0		1,3-11,4 13,1-13,2 12,7-12,9 11,7-12,0

Torque-control travel on flyweight assembly dimension a =

1145-1160 min Speed regulation: At

1 mm less control

#### C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting fi Idle spee	uel delivery 6
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min	cm <sup>3</sup> /~1000 strokes 5	rev/min 6	red travel cm <sup>3</sup> /1000 strokes:/ mm 7
LDA	1,0 bar		LDA	1,0 bar	100	205,0-225,0
750	217,0-220,0		650	208,0-213,0		(201,0-229,0)
	(214,0-223,0)			(205,0-216,0)		
1100	180,0-185,0		LDA	0,34 bar		
	(177,0-188,0)		500	145,0-150,0		
(1)				(142,0-153,0)		
1	1		LDA	0 bar		
			500	101,0-104,0		
				(98,0-107,0)	ĺ	

Checking values in brackets

Checkin	g of slider	Full load				idle spec	•			Torque o	
PRG che rev/min	Control rod travel	Setting por rev/min 3	Control rod travel roten	Test spec Control rod travel mm 5	rev/min	Setting programmer of the setting programmer	Control red travel	revimin 9	crications (5) Control rod travel mm	rev/min	Control rod travel mm
600 VH =	19,2-20,8 max. 46°	600	20,0	10,3 4,0 1400	1145-1160 1185-1215 0 - 1,0	250	6,4		min. 7,9 6,3-6,5 90 = 2,0	1100 750 865 975	1,3-11,4 3,1-13,2 2,7-12,9 11,7-12,0

Torque control travel on the weight assembly dimension a

0,7

Speed regulation 1/145-1160 min-1

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np 40°C (104 F)	Control rad stop 3a	Fuel deliv	ery characteristics 3b	Starting f	uel delivery d · Control
rev/min	cm*/-1000 strokes	rev/min 3	rev/min 4	cm*/-1000 strokes 5	rev/min	ind travel cm 1/1000 strokes / mm 7
(2) LDA 750 LDA 1100	1,0 bar 207,0-209,0 (203,0-213,0) 1,0 bar 171,0-177,0 (169,0-179,0)	-	LDA 650 LDA 500 LDA 500	1,0 bar 196,0-202,0 (194,0-204,0) 0,34 bar 141,0-147,0 (139,0-149,0) 0 bar 97,0-99,0	100	205,0-225,0 (201,0-229,0)

Checking values in brackets

## Testoil-ISO 4113

### D. Adjustment Test for Manifold Pressure Compensator

Test at n

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting : Dar	Measurement  Gauge pressure - bar	diminution Control rod travel- difference mm (1)
PES 6 P 19 388 + RQ PA 452		0 0,34 0,61	13,1-13,2 9,4-9,5 10,9-11,0 12,5-12,9

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

E19

## **Test Specifications** Fuel Injection Pumps 2 and Governors

tropicalized version

WPP 001/4 MAN 11.1 q 11 2. Edition

PES 6 P 120 A 720 LS 388 RO 250/1100 PA 658-6

Komb.-Nr. 0 402 046 260, 0 402 046 261

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersede 83

company MAN

engine: D 2566 MKF

235 kW (320 PS)(1) D 2566 NKF-Tropen

224 kW (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(2.95-3.15)

mm (from BDC) ZV1. 6:

RW = 9.0-12.0 mm

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery  cm <sup>3</sup> /100 strokes  3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,1+0,1	21,7-22,0	0,5(0,9)			
250	6,3-6,5	1,1-1,7	0,8(1,2)			
			-			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

(1)

Checkin PRG che		Full-load : Setting po	•	•	cifications (4)	idle spe Setting p	-		cifications (5)	Torque	control 3
rev/min 1	travel mm	rev/min 3	Control red travel rnrn 4	Central red travel rnm 5	rev/min 6	rev/min 7	Control red travel rn.m 8	rev/min 9	Control rod travel	rev/min 11	travel
600 VH	19,2-20,8 = max. 46°	600	20,0		1145-1160 1185-1215 0 - 1,0		6,4	250	min.7,9 6,3-6,5 90=2,0	900	11,3-11,4 13,1-13,2 12,6-12,7 11,8-12,0
Torque-c	ontrol travel		0,7				1	145-1	160 min 1		1 mm less contro

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics	Starting !	uel delivery 6
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes 5	rev/min	cm <sup>3</sup> /1000 strokes:/ mm 7
(1) LDA 750	1,0 bar 217,0-220,0 (214,0-223,0	-	LDA 650	1,0 bar 208,0-213,0 (205,0-216,0)	100	205,0-225,0
LDA 1100	1,0 bar 180,0-185,0 (177,0-188,0)		LDA 500	0,34 bar 145,0-150,0 (142,0-153,0)		
			1DA 500	109,0-104,0		

Checking values in brackets

(98.0-107.0)

	Governor	
_		

PRG che	Control rod Itravel	Full load s Setting po rev/min 3	•	•		Idle spec Setting p rev/min 7	Control Foot travel		critications 5 Control rod Iravel mm	forque o	Control rod (3)
600 VH =	19,2-20,8 max. 46°	600	20,0	10,3 4,0 1400	1145-1160 1185-1215 0 - 1,0		6,4	250	min. 7,9 6,3-6,5 390 = 2,0	750 865	11,3-11,4 13,1-13,2 12,7-12,9 11,7-12,0

Torque control travel on flyweight assembly dimension a 0,7 mm

Speed regulation Al 145-1160 min<sup>-1</sup>

1 mm less control rod travel

### C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp 40 C (104 F)	Control rad stop 3a	fuel deliv	ery characteristics (3b)	Starting I Idle spee	Control
rev/min 1	cm*/- 1000 strokes 2	rev/min 3	tev/min	cm*r=1000 strokes 5	rev/min 6	red travel cm <sup>4</sup> /1000 strokes / mm 7
(2) LDA 750	1,0 bar 207,0-209,0	-	LDA 650	1,0 bar 196,0-202,0 (194,0-204,0)	100	205,0-225,0 (201,0-229,0)
LDA 1100	(203,0-213,0) 1,0 bar 171,0-177,0 (169,0-179,0)		LDA 500 LDA 500	0,34 bar 141,0-147,0 (139,0-149,0) 0 bar 97,0-99,0		

Checking values in brackets

## Testoil-ISO 4113

### D. Adjustment Test for Manifold Pressure Compensator

rev/min decreasing pressure – in bar gauge pressure

	increasing		
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure bar	Gauge pressure : bar	mm (1)
PES6PLS 388 +RQ PA 452	1,0	0 0,34 0,61	13,1-13,2 9,4-9,5 10,9-11,0 12,5-12,9

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

①

## Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 L 2. Edition

En

PE 6 P 120 A 320 RS 474 RQV 275-1200 PA 425-3 Komb.-Nr. 0 401 846 499 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 0 67

compan MIDS 0620 30 168 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at pres	troke	3,5-3,6	mm (from BDC)	RW = 9.0	-12,0 mm	
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>2</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200 275	12,6+0,1 6,0-6,2	14,8-15,0 0,8-1,4	0,5(0,9) 0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Upper rated	speed			Intermediate	rated sp	ed	Lower rated	speed		Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	trevei \		Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min 10	0
max.	1230	15,2-17,	8	-	•	-	ca. 12	200	min.9,1	275	1,2-1,4
ca.65	11,6 4,0 1500	1265-127 1380-141 0-1,0	0				275-360			400 ` 900 200	2,9-3,4 5,8-6,0 7,9
							<b>3</b>				

Torque control travel a =

mir

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roc Test oil ten		Rotational-speed 20 limitation intermediate speed	Fuel delh high idle s	rery characteristics (5e) peed (5b)	Starting Idle switchir	•	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1200	0,7 bar 148,0-150,0 (145,0-153,0)		LDA 750	0,7 bar 137,0-143,0 (134,0-146,0)	100	105,0-125,0 (101,0-129,0)	-	•
•	-		<b>LDA</b> 500	0 bar 91;0-93,0 (88,0-96,0)	į			
					<u> </u>			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

### D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

RVI 8,8 1

300			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 P RS 474 + RQVPA 425-3	0,70		12,6 - 12,7
+ KQ1FA 425-5		0	11,3 - 11,4
		0,20	12,3 - 12,4
		0,16	11,6 - 11,8
		•	
	·		

Notes:

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testcil-ISO 4113

## **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 18,3 d 5. Edition

PE 10 P 110 A 320 LS 3818 ROV 300-1150 PA 486-2 1-8-7-6-3-5-2-10-9-4

0-27-72-99-144-171-216-243-288-315° + 0.5° (+ 0.75°)

supersedes 34 companyDaimler-Benz engine: OM 423 261 kW (355 PS)

Komb.-Nr. 0 401 849 706

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

TPORM		mm (from BDC)	Zyl. 10	); $RW = 9,0-12$	,0 mm
Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm	cm <sup>3</sup> /100 strokes	100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
2	3	•	2	3	0
12,1+0,1	12,4-12,6	0,4 (0,8)			
8,5-8,7	1,4-2,2	0,4 (0,7)			
-	C. Sp. 4 + 5	0.6 (0.9)			
-					
	Control rod travel mm 2 12,1+0,1 8,5-8,7	Control rod trevel Fuel delivery cm <sup>3</sup> /100 strokes 3  12,1+0,1 12,4-12,6  8,5-8,7 1,4-2,2  C, Sp. 4 + 5	Control rod travel  mm  cm³/100 strokes  12,1+0,1 12,4-12,6 0,4 (0,8)  8,5-8,7 1,4-2,2 0,4 (0,7)  C, Sp. 4 + 5 0,6 (0,9)	Control rod travel  mm  cm³/100 strokes  12,1+0,1 12,4-12,6 0,4 (0,8)  8,5-8,7 1,4-2,2 0,4 (0,7)  C, Sp. 4 + 5 0,6 (0,9)	Control rod travel  mm  cm³/100 strokes  cm³/ 100 strokes  12,1+0,1  12,4-12,6  0,4 (0,8)  8,5-8,7  1,4-2,2  0,4 (0,7)  C, Sp. 4 + 5 0,6 (0,9)

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Upper rated s	peed			Intermediate rated speed				Lower rated	speed		Sliding	Sliding sleeve travel	
deflection	rev/min Control rod travel mm	Control rod travel mm rev/min 3	(a)	of control	rev/min	Control ( travel mm 6	od ①	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3		0	
max. ca. 55	1190 11,1 4,0 1400	1190-12 1235-12	00 65	-	•	-		ca. 23	<b>B00</b>	min.10,2 8,5-8,7 90 = 2,0	800 1200	1,6-1,8 5,8-6,2 8,2-8,4 10,0	
								<b>3</b>					

Torque control travel = =0,5

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 20 limitation intermediate speed	Fuel delik high idle s	very characteristics (5e poed (3e)	Starting fuel delivery 6 Idle switching point		Torque- travel	Control rod	
rev/min	cm <sup>2</sup> /1000 strokes .	rev/min 40	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travei mm	
1	2	3	4	5	6	7	8	9	
1150	124,0-126,0 (121,5-128,5		600	110,0-114,0 (107,0-117,0)	100	140,0-160,0 (136,0-164,0	600	12,1+0, 12,5+0, 12,4+0,	
	·		900	118,0-12 <b>3,</b> 0 (115,0-126,0)					

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Testoli-150 4113

## Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 r 8

1. Edition

En

PE 6 P 110 A 720 RS 3040 Komb.-Nr. 0 401 846 795

RQV 275-1000 PA 555-2

supersedes

company: Scania

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at pres	stroke	(3.25-3.45)	mm (from BDC)	; RW =	9,0-12,0 mm	
Rotational speed	Control rod travel	Fuel delivery	Difference cm <sup>3</sup> /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm <sup>3</sup> /100 strokes	100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
		3	<del>- `</del> -	2	3	
700	13,6+0,1	16,8-17,0	0,6(0,8)		<u>                                     </u>	$3,3^{\pm}0,1$ (3,0-3,5)
275	4,4-4,6	1,7-2,1	0,2(0,4)			(3,0-3,3)
				ļ		

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated a	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Sliding	leeve travel
deflection	rev/min Control rod travel	Control rod to travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		0
lever	mm	rev/min (2a)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	в	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca. 8	100 275	min. 5,9 4,4-4,6	275 425	0,9-1,1 3,2-4,3
ca. 60	12,6 4,0	1040-1050 1195-1225						385= 2,0	520	5,9-6,1 8,1
	1350	0 - 1,0						1		
						<b>3</b> a				

Torque control travel a = -

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		limitation intermediate speed	high idle t	very characteristics (5e)	Starting Idle switching	0	Torque- travel	Control od
rev/min	cm <sup>3</sup> /1000 strokes .	rev/min 4	rev/min	cm <sup>3</sup> /1000 atrokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	mm .
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 168,0-170,0 (166,0-172,0	1040-1050*	LDA 1000 LDA 500	0,9 bar 171,5-176,5 (169,0-179,0 0 bar 133,0-137,0 (131,0-139,0)	) 275	240,0-290,0 = 20,0-21,0 mm RW 17,0-21,0		-

Chucking values in brackets

\* 1 mm less control rod travel than col. 2

#### D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 r8 - 2 -

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement .	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6PRS 3040 + RQVPA 555-2	0,90	0 0,42 0,29	13,6-13,7 12,0-12,1 13,2-13,3 12,3-12,5

Notes

(1) when n =

rev/min and gauge pressure =

har ( \* maximum full-load control rod travel)

SCA 11,0 y 1

#### SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 20.2.1984
- Start of fuel delivery-engine:

19° before TDC

- Firing sequence, engine

1-5-3-6-2-4

## **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 VOL 12,0 d Edition

PE 6 P 120 A 320 RS 3050 Komb.-Ur. 0 401 846 714 ROV 250-1100 PA 431/2R

supersedes 8, 81 company: Volvo

TD 120 F 283 kW (385PS)

Testing with T nozzles and fuel lines  $8 \times 2 \times 1000$ according to ..W 400/305

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

2 40-2 50

#### A. Fuel injection Pump Settings

Port closing at pret	stroke	(2 25 2 55)	mm (from BDC)			
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,5-13,6	23,9 - 24,2	G,4(0,8)			
250	3,8-3,9		0,3(0,7)			n r <sup>†</sup> 0 1 ++
700		C, Sp. 4-5	0,6(1,0)			2,5 <sup>±</sup> 0,1 ** (2,2-2,9)
				]		

Adjust the fuel delivery from each outlet according to the values in \_\_\_\_\_\_ \*\* In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly. B. Governor Settings

Upper rated s	speed		Intermediate	rated sp	eed	Lower rated	speed	•	Slidina s	leeve travel
deflection		traver —	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm ①
1	2	3	14	5	6	7	8	9	10	11
mex.	1100	15,2-17,8	-	-	-	ca.12	100 250	min.6,5 3,8-3,9	250 800	0,5-1,2 4,6-5,0
cn.48	12,5 4,0 1350	1140-1150 1250-1270 0 - 1,0					500	max. 1 340 = 2,0	170	8,3
						<u>3</u>				

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		limitation intermediate speed			Starting idle switching	<b>O</b>	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 700	1,0 bar 239,0-242,0 (236,0-245,0)	1140-1150*	LDA 700	0 bar 152,0-156,0 (149,0-159,0)		390, 0-430, 0 20-25 **		
					Stre	uung max.3(7)		

Checking values in brackets

1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 d

- 2 -

iestatn =

500

rev/min decreasing pressure - in bar gauge pressure

300					
Pump/governor	Setting	Meas	surement		diminution Control rod travel- difference
	Gauge pressure ::	bar Gaug	je pressure =	bar	mm (1) .
PE6P RS 3050 +RQVPA431/2R	0,14		0,80		10,5-10,6 13,1-13,3

Notes

(1) when n -

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

estoil-ISO 4113

## Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 d 2

4. Edition

PE 6 P 120 A 320 RS 3050 RQV 250-1025 PA 611 Komb.-Nr. 0 401 846 751 Values only apply to test nozzle-and-holder assembly 1 688 90% 019 and fuel-injection test tubing 1 680 750 0 67

company/01vo engine: TD 120 FC

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

ort closing at pres		35-2.55)		DEI KM 3	0-12.0 mm	
Rotational apead	Control rod travel	Fuel delivery	Difference cm <sup>3</sup> /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3 .	4	2	3	6
700	2,8+0,1	23,0-23,3	0,5 (0,9)			2,5 ± 0,1
250	3,6-3,8	1,8-2,3	0,5 (0,7)			(2,2 - 2,9)
		]		ĺ		

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Upper rated speed Intermedia				rated ap	eed	Lower rated	speed		Sliding a	Sliding sleeve travel	
deflection	rev/min Centrol rod travel mm	travel .	Degree of deflection of control lover	rev/min	Control rad travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm ①	
1	2	3	4	5	6	7	8	9	10	11	
max.	1080	15,2-17,8	-	-	-	ca. 8	100	min. 5,1		0,6-0,9	
	11,8 4,0 1300	1085-1095 1150-1180 3 0-1,0						3,6-3,8  360 = 2,0	475. 670- 940 1025	3,9-4,5 6,4-6,6 7,5	
		1				<b>3</b>					

Torque control travel a = min

#### C. Settings for Fuel injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten	d stop	and modern speed	high idle s	peed (C)	Starting Idle switching		Torque- travel	control (5)
rev/min	cm³/1000 strokes .	rev/min 4	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	travel mm
LDA 700	1,2 bar 230,0-233,0 (227,0-236,0)	1085-1095*	LDA 700	0 bar 138,0-142,0 (135,0-145,0		<b>-</b>	-	•

Checking values in brackets

\* 1 mm less control rod travel than col. 2

## D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 d 2

Test at n =

500

rev/min decreasing pressure ~ in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 PRS 3050	1,20		12,8 - 12,9
+ RQVPA 611		0	9,1 - 9,2
		0,82	12,6 - 12,7
		0,07	9,2 - 9,4
			<u> </u>

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

## **Test Specifications Fuel Injection Pumps** and Governors

WPP 001/4 SCA 11,0 s 1

Edition

supersedes 83

En

PE 6 P 110 A 720 RS 3065

RSV 350-1100 P1/481

companySaab-Scania engine DN11 01

Komb.-Nr. 0 401 876 719

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings
3,3-3,4
Port closing at prestroke (3,25-3,45)

mm (from BDG# RW 9,0 - 12,0 mm

		3,23 3,437				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm³/100 strokes	cm³/ 100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3	4	2	3	6 .
1100	12,5+0,1	13,5 - 13,7	0,6(0,8)			2,5 ± 0,1 (2,2-2,9)
350	6,2-6,4	1,5 - 1,9	0,2(0,4)			(2,2-2,9)
		ļ				
}		1	1	l		

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper	rated speed	1	Intermediate	rated spe	ed	4 Lowe	r rated spe	ed	(3) To	que control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
loose		0,3-1,0	-	-	•	ca.20	350	5,5	-	-
	x = 3	,25	l			-	350	5.9.6.1		
€a.66	,	150=11,5 240= 4,0 ,3-1,7					490-5	5,9-6,1 50=2,0		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-k	oad stop	6 Rotational- speed limitat. 3a Fuel delivery characteristics			Starting Idle	fuel delivery	(5a) Idle stop		
Test oil temp. 40°C (104°F) rev/min cm³/1000 strokes 1 2		Note: changed to rev/min 3	rev/min cm³/1000 strokes		rev/min cm³/1000 strokes 6 7		rev/min 8	Control rod travel mm 9	
1100	135, 0-137, 0 (133, 0-139, 0)	1140-1150*	600	131,5-136,5 (129, 0-139, 0)	100	190,0-240,0 = 20,0-21 mm RW		-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

#### SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22.8.1983

- Start of fuel delivery-engine: 23° before TDC

- Firing sequence, engine : 1-5-3-6-2-4

**②** 

Testoil-ISO 4113

## Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 SCA 11,0 s2 2. Edition

<u>En</u>

PE6P 110 A 720 RS 3065 Komb.-Nr. 0 401 846 722 RO 250/1100 PA 470 R

supersed 6.83 Scania company D 11 engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(3.25 - 3.45)

mm (from BDC)

		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm3/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1100	12,5+0,1	13,5-13,7	0,6 (0,8	)		2,5 <sup>±</sup> 0,1
225	5,8-6,0	0,9 - 1,3	0,2(0,4)			(2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Checkin PRG che	<b>d</b> (1)	Full-load s Setting po	int	Test spec	offications (4)	Idle spec	_		cifications (5)	Torque	(3)
rev/min t	Control rod travel mm 2		Central red trovel rmm 4	Central red itsred rmm 5	rev/min 6	rev/min	Control red travel mmrn 8	rev/min 9	Control rod travel mm 10		Control rod travel mm
550 VH =	19,2-20,8 max. 46°		20,0	11,5 4,0 1400	1215-1245		5,9	225	nin. 7 <i>3</i> 5,8-6,0 380 = 2,0		-

Torque-control travel on flyweig:it assembly dimension a =

mm

Speed regulation: 1145-1160 min

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics 36	Starting (	tuel delivery 6
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev <i>im</i> in 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	rei tradi cm <sup>2</sup> /1000 strokes:/ mm 7
1100	135,0-137,0 (133,0-139,0)	-	600	131,5-136,5 (129,0-139,0)	100 (	190,0-240,0 186,0-244,0)
					225 Streu	9,0 - 13,0 g. max. 2 (4)

Checking values in brackets

3.85

BOSCH

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#### SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 6.4.1984
- Start of fuel delivery-engine: 23° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

## Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 K 3

1. Edition

E۵

PE 6 P 120A 320 RS 3118-2 Komb.-Nr. 0 401 846 796

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

d-holder ection test

supersedes

company: Vol vo engine: TD 121 FC 232 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at pres	troke (2	55-2.75)	mm (from BDC)			
Rotational speed revimin	Control rod travel mm 2	Fuel delivery  cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,4+0,1	19,7-20,0	0,5(0,9)			2,5 <sup>±</sup> 0,1 (2,2-2,9)
250	3,3-3,5	1,8-2,3	0,5(0,7)			(2,202,3)

ROV 250-900 PA 657-5

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated	epeed		Intermediat	e rated sp	eed	Lower rated	speed	•	Sliding s	leeve travel
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	travel	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	rev/min 10	(1) mm
max.	980	15,2-17,	8 -	-	-	ca. 7	100 250			0,6-0,9 4,2-4,8
ca. 62	10,4 4,0 1100	940-950 1000-103 0 - 1,0					280-3		660 - 850 900	6,4-6,6 7,2
						<b>②</b>				

Torque control travel a = \_\_\_ mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rod Test oil ten	d stop	Imitation Intermediate speed	(3)		Starting Idle switching	0	Torque-control (travel	
rev/min	cm³/1000 strokes	rev/min 😩	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	0
LDA 700	0,7 bar 197,0-200,0 (194,0-203,0		LDA 700	0 bar 150,0-154,0 (147,0-157,0)	100	240,0-280,0 = 20,0-21,0 mm RW	-	-
				·	250	18,0-23,0		

Chucking values in brackets

1 mm less control rad travel than col. 2

### D. Adjustment Test for Manifold Pressure Compensator

VOL 12,0 K3 - 2

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 3118-2 +RQVPA 657-5	<b>0,70</b>	0 0,43 0,17	11,4-11,5 9,1-9,2 11,2-11,3 9,2-9,4

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

## **Test Specifications** Fuel Injection Pumps (1A) and Governors

WPP 001/4 PEN 12,0 f

1. Edition

PE 6 P 120 A 320 RS 3122 Komb.-Nr. 0 401 876 725

RSV 200-900 P 4/421 R

supersedes-

Values only apply to test nozzle-and-holder

assembly 1 688 901 019 and fuel-injection test

company Volvo-Penta TMD 120 B

tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,6 - 2,7

mm (from BDC)

		2,33-2,737				
Rotational speed rev/min	Control rod travel	Fuel delivery  cm <sup>3</sup> /100 strokes 3	Difference cm <sup>1</sup> / 100 strokes	Control rod travel mm 2	Fuel delivery  cm //100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,7+0,1	18,3-18,7	0,5 (0,9)			2,5 ± 0,1
250	4,2-4,4	1,6-2,0	0,5 (0,8)			(2,2 - 2,9)
					•	

Adjust the fuel delivery from each outlet according to the values in C

#### **B. Governor Settings**

	r rated speed Control rod travel mm		Intermed	hate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm		rque control Control rod travel mm
lose	800 x =	0,3-1,7 4,0	-	-	•	ca. 22	250 250	3,8 4,2-4,4	-	-
ca. 53	10,7 4,0 1130	940-950 970-1000 0,3-1,7					300-36	0 = 2,0		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-	6 Rotational- speed limital 3a Fuel delivery characteristics			uel delivery 5	da idle stop		
1	mp. 40°C (104°F) cm²/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm <sup>1</sup> /1000 strokes 5	rev/min	cm <sup>3</sup> /1000 strokes 7	rev/min 8	Control root travel mm	
700	183,0-187,0 (181,0-189,0)	940-950*	900	189,0-193,0 (186,0-196,0)	100	390,0-440 (386,0-444 =20,0-21,0 mm RW 16,0-20,0 (13,0-23,0	(0) )	4,3	

Checking values in brackets

\* 1 mm less control rod travel than col 2

3.85

BOSCH

pich KH. Kundendienst KIz-Ausrustung. Dert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany Children Adamsons per Robert Bosch GmbH.

### **Test Specifications** Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 14,6 p 3. Edition

PE 8 P 120 A 320 LS 3816

RSV 650-1150 P0/823

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je  $45^{\circ} \pm 0.5^{\circ}$  ( $\pm 0.75^{\circ}$ ) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 0 67
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersede 5.84 Daimler-Benz company OM 422 A 206 kW Komb.-Nr. 0 401 87870

(3.95-4.15)

A. Fuel Injection Pump Settings 4,0-4,1

Port closing at prestroke

mm (from BDCJy1. 8

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (forque control valve)
rev/min 1	mm 2	cm //100 strokes	cm <sup>1</sup> / 100 strokes 4	mm 2	cm //100 strokes	mm 6
1180	9,3-9,4	13.7-13.9	0,5 (0,9)			
650	3,1-3,3	1,6-2,2	0,8 (1,2)			
975		, Sp. 4 u.5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in [

#### **B. Governor Settings**

	er rated speed	Frey/min	Interm	ediate rate	d speed	<b>①</b>	. Low	er rated speed	(3) to	rque control
Degrae of deflection of control	travel mm	travel				Control- lever deflection	rev/min	Control rod travel	rev/min	Control rod travel
lever 1	2	3	4	5	е	in degrees 7	8	9	10	11
loose	800	0,3-1,0	•	-	-	-	8.	-	1180	9,3-9,4
1.003,6	x =	2,0							975 1075	10,1-10,2 9,6-9,8
ca.46	8,3 4,0 1400	1210-1220 1235-1250 0,3-1,7							10/5	3,0-9 <b>,</b> 0

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat		iel delivery paracteristics	Starting I	luel delivery 5	(4a) (id)	e stop
	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to ) rev/min 3	rev/min <sub>.</sub>	cm <sup>1</sup> /1000 strokes 5	rev/min	cm <sup>1</sup> /1000 strokes	rev/min	Control rod travel mm
1180	137,0-139,0 (134,0-142,0)	1160-1170* **	975	152,0-158,0 (149,0-161,0)	100	140,0-160 (136,0-164		•
				ž				

Checking values in brackets

\* 1 mm less control rod travel than col 2

\*\* When checking the full-load delivery, set the speed regulation at 1200 min/1. After checking set it back at 1150 min/1.

2.85

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung c 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1 Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

## **Test Specifications** Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 14,6 p 1

1. Edition

PE 8 P 120 A 320 LS 3816-10

RSV 650-1150 POA 823

1-8-7-2-6-3-5-4 je 45°  $\pm$  0,5° ( $\pm$  0,75°) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

tubing 1 680 750 0 67
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersede 5 Daimler-Benz company OM 422 A 206 kW Komb.-Nr. 0 401 878 70.

A. Fuel Injection Pump Settings

Port closing at prestroke

4,0-4,1 (3.95-4.15)

mm (from BDOZY1. 8

Rotational speed rev/min	Control rod travel	Fuel delivery cm1/00 strokes	Difference cm v 100 strokes	Control rod travel mm	Fuel delivery cm/100 strokes	Spring pre-tensioning (torque-control valve) mm
1130	9,3-9,4	13,7 <sup>2</sup> 13,9	0,5 (0,9)	2	3	
650	3,1-3,3	1,6-2,2	0,8 (1,2)			
975	-	C, Sp. 4 u. 5	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Degree of deflection of control lever	r rated speed Control rod travel mm		Interme	ediate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed  Control rod travel mm	(3) To	rque control   Control rod travel mm
lose	800 x =	0,3-1,0 2,25	-	-	-	ca. 24	650 650 655-69	3,6 3,5-3,7 5 = 2,0	1130 1000 1050	10,1-10,2
ca. 46	8,3 4,0 1400	1210-1220 1235-1250 0,3-1,4				e e e e e e e e e e e e e e e e e e e				

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	il-load stop	6 Rotational- speed limitat		iel delivery paracteristics	Starting (	fuel delivery 5	<b>49</b> Idi	e stop
Test oil to rev/min 1	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm <sup>3</sup> /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1130	137,0-139,0 (134,0-142,0)	1160-1170*	1000	152,0-158,0 (149,0-161,0)	100	140,0-160, 136,0-164,		_

Checking values in brackets

\* 1 mm less control rod travel than col 2

1.85

Geschäftsbereich KH. Kundendienst Kfz-Ausrüstung.

£ 1960 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgarf 1 Printed in the Federal Report of the Printed in the Federal Report Bosch GmbH.

## **Test Specifications** Distributor-Type Fuel Injection Pump

WPP 001/4 STE 4,0 h 1

1. Edition

VA 4/100 H 1200 CR 145-2 ·

2. Test Specifications

0 460 304 228

DHK: 1688 901 020/172 + 3 bar

Pre-stroke setting

0,3 mm

supersedes.

Steyr company

WD 412-40 engine

All test specifications are valid for **Bosch Fuel Injection Pump Test Benches** and Testers

4000

**Test Intructions and Test Equipment** 

**VDT-WPP 161/4 B** 

Pre-setting see reverse side

1.	Settings	rev/min	Settings		Charge air press kp/cm²	Difference in delivery cm <sup>3</sup>
11	Timing device travel	800	4,2-5,2	mm .		
12	Supply pump pressure	800	4,2-4,7	kp/cm²		
13	Full-load delivery without charge-air pressure	700	77,0-79,0	cm <sup>3</sup> /1000 strokes		
	Full load delivery with charge-air pressure	-		cm <sup>3</sup> /1000 strokes		
14	tdle speed regulation	280	12,0-18,0	cm <sup>3</sup> /1000 strokes		
1.5	Start	100	min. 80,0	cm³/1000 strokes		
16	Full-load speed regulation	1290	36,40-44,0	cm <sup>3</sup> /1000 strokes		

000

Checking values in brackets COO

rev/min	600		800	1000	
mm	1,7-2,7	(1,5-2,9)	(4,0-5,4)	7,5-8,5 (7,3-8,7)	
rev/min kp/cm²	200 1,2-1,7	(1,0-1,9)	800 (4,0-4,9)	1200 5,5-6,1 (5,3-6,3)	
rev/min cm³/10 s	500 55-97 (40-112)		1200 55-97 (40-112)		
Delivery lever	rev/min	cm <sup>3</sup> /1000 strokes		Charge-air pressure kp/cm <sup>2</sup>	
Full	1380 1330 1290 1180 700 500		(76.0-80.0)		
Stop	1200	0			
Full	280 350 410	min. 2,0 max. 2,0 min. 80,0	(11,0-19,0)		
	rev/min kp/cm² rev/min cm³/10 s  Delivery tever Full  Stop	rev/min 200 1,2-1,7 ( rev/min 500 cm³/10 s 55-97 (4    Delivery tever rev/min 1380 1330 1290 1180 700 500    Stop 1200   Full 280 350 410	Tev/min   200   1,2-1,7 (1,5-2,9)	Tev/min   200   800   800   1,2-1,7 (1,0-1,9)   (4,0-4,9)   1,2-1,7 (1,0-1,9)   (4,0-4,9)   1,2-1,7 (1,0-1,9)   (4,0-4,9)   1,2-1,7 (1,0-1,9)   (4,0-4,9)   1,2-1,7 (1,0-1,9)   (4,0-4,9)   1,2-1,7 (1,0-1,9)   (4,0-4,9)   1,2-1,7 (1,0-1,9)   1,0-1,9   1,0-	

Angle to the stop plate	Pre-setting dimensions
Pump a = 25 ± 4 ° B = 40 ± 8 ° V = 30 - 8 ° b = 60 + 8 °	Pump Dimension IV Dimension V = 24,65 mm

**Test Specifications** Distributor-type Fuel-injection Pumps

WPP 001/4 PER 5,8 c 4

3. Edition

Testoil-ISO 4113

VE 6/12 F 1300 L 21-2

Overflow temperature 45° C

supersedes

company:

12.82 **Perkins** 

engine:

T 6.354.4

DHK: 1 688 901 020

0 460 426 013

All test specifications are valid only for Boach Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,45

2. Test Specifications checking values in brackets (

± 0,02 (0,04)

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	600	2,5-2,9	mm	0,65	
1.2 Supply-pump pressure	600	3,8-4,4	bar (kgf/cm²)	0,65	
1.3 Full-load delivery with	1000	92,5-93,5	cm³/1000 strokes	0,65	max. 3,5
charge air pressure Full-load delivery without	500	68,5-72,5	cm³/1000 strokes	0	
charge-air pressure  1.4 tdle regulation	270	8,0-12,0	cm <sup>3</sup> /1000 strokes	0	max. 3,5
1.5 Full-speed regulation	1480	42,0-50,0	cm <sup>3</sup> /1000 strokes	0,65	
1.6 Start	100	min. 78	cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	-				

2.1 Timing device	n = rev/min	400 0,7-1,5		600 (2,0-3,4)		800	
2.2 Supply pump	n = rev/min					6 (3,5-4,9)	
Z.z ouppry parrip	bar (kgf/cm²)	400 3,0-3		1300 6,0-6,6			
Overflow delivery n = rev/min cm <sup>3</sup> /10 s		500 55-138 (40-153)		130 55_138	00 (40-153)		
2.3 Fuel deliveries		03-100	(40-105)	33-130	3. Dimen	Sions for assembly	
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm	
End stop	1550 1480 1300 1000 1000 700 *		(41,0-51,0) (84,0-90,0) (90,0-96,0) (77,5-83,5) (82,8-90,2) (66,8-74,2)	0,65 0,65 0 0,32	K KF MS SVS	5,1-5,4 0,9-1,1 max. 6,0	
switch-off	1300	0			λκ <sup>B</sup> χι	20,2-22,2	
idle stop	330-420 270	0	(5,0-15,0)		Observations  * Manifold-pressu		
End stop	150 230	min. 78 max. 75			= 4,0 Correc	nsator stroke rm tion at the ting nut. (46	
2.4 Solenoid	max. cut-in voltage						

**(B)** 

## **Test Specifications** Distributor-type Fuel-injection Pumps

2. Test Specifications checking values in brackets (

WPP 001/4 VWW 2,3bl

2. Edition

OSI-lighes

Overflow temperature 45° C

supersedes company: 087/10

see VDT-W-460/...

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

**Test Instructions and Test Equipment** 

mm Pre-stroke setting

VE 6/10 F 2400 L 32

0 460 406 003

1. Settings				Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
	1500	2,8-3,2	mm		
1.1 Timing device travel	1500	5,2-5,8	*****		
1.2 Supply-pump pressure	1		bar (kgf/cm²)		max. 2,5
1.3 Full-load delivery with	1500	28,5-29,5	cm <sup>2</sup> /1000 strokes		11100. 2,0
charge-air pressure Full-load delivery without			cm³/1000 strokes		
charge-air pressure 1.4 Idle regulation	350	10,0-14,0	cm <sup>3</sup> /1000 strokes		max. 2,0
1.5 Full-speed regulation	100	min. 35,0	cm <sup>3</sup> /1000 strokes		
1.6 Start	2700	6,0-12,0	cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing					

2.f Timing device	n = rev/min mm	1000 150 0,8-1,6(0,5-1,9)(2,8-	2400 7-6,5(5,4-6,8)		
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,8-3,4	2400 7,7-8,3		
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-110(40-125)		400 10(40-125)	
2.3 Fuel delivaries  Speed control lever	Rot. speed	Fuel delivery	Charge-air press.	3. Dimen	Bions for assembly and adjustment
End stop	2700 2600 2400 1500 750	(5,0-13,0) 15,0-22,0 (14,5-22,5) 22,0-24,0 (20,8-25,2) (26,8-31,2) 26,0-29,0 (24,5-30,5)	bar (kgf/cm²)	K KF MS SVS	3,2-3,4 6,4-6,6 1,4-1,6 max.3,0
switch-off elektr.	400	0		XK XJ-	18,5-20,5 9,2-12,9
End Stop	400 350 400 500	3,0-9,0 ( 8,0-16,0) min.20,0 max.25,0		Observations	

24 Solenoid

xxx min. 10.0 V rated voltage 12V.

max. cut-in voltage

tolliso 4143

VE 6/10 F 2400 L 32-1 (P)

0 460 406 009;

010 Overflow temperature 45° C

superseded 0.82 company: VW

engine: 087/10 Autom.

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

mm

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	2,8-3,2	mm		
1.2 Supply-pump pressure	1500	5,2-5,8	bar (kgf/cm²)		
1.3 Full-load delivery with charge-air pressure	1500	28,5-29,5	cm <sup>3</sup> /1000 strokes		max. 2,5
Full-load delivery without	-	-	cm <sup>3</sup> /1000 strokes		1
charge-air pressure 1.4 Idle regulation	350	10,0-14,0	cm³/1000 strokes		max. 2.0
1.5 Full-speed regulation	100	min. 35,0	cm³/1000 strokes		
1.6 Start	2700	6,0-12,0	cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	_	_			

2. Test Spe	<del></del>	checking values in brackets ( )	1500		2400	
2.1 Timing device	n = rev/min mm	0,8-1,6(0,5-1,9) (2,	5,7-6,5(5,4-6			
2.2 Supply pump	n = rev/min ber (kgf/cm²)	600 2,8-3,4			2400 7,7-8,3	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138(40-153)	5	2400 55-138(40-153)		
2.3 Fuel deliveries	<b>I</b>			3. Dimen	SIONS tor assembly and adjustment	
Speed control lever	Rot. speed	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kg//cm²)	Designation	min adjustment	
End stop	2700 2600 2400 1500 750	(5,0-13,0) 15,0-22,0 (14,5-22,5) 22,0-24,0 (20,8-25,2) (26,8-31,2) 26,0-29,0 (24,5-30,5)		K KF MS SVS	3,2-3,4 6,4-6,6 1,4-1,6 max. 3,0	
switch-off mech. elektr.	2400 400	0		XK XL	18,5-20,5 9.2-12,9	
End stop	400 350 400 500	3,0-9,0 (8,0-16,0) min. 20 max. 25		Observations  Stop check (lever) at n = 2400 min/1		
2.4 Solenold	max. cut-in volta	e xxxx min. 10,0 V rated voltage 12 V:				

## Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 2,4 k

2. Edition

01-180 4-13

VE 6/10 F 2400 L 32-2

Overflow temperature 45° C

supersedes VWW company: 087/10

0 460 406 037

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

m

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>9</sup>
1.1 Timing device travel	1500	2,8-3,2	mm		
1.2 Supply-pump pressure	1500	5,2-5,8	bar (kgf/cm²)	j	
1.3 Full-load delivery with	1500	28,5-29,5	cm³/1000 strokes		max. 2,5
charge-air pressure Full-load delivery without	-		cm³/1000 strokes		
charge-air pressure	375	6,0-10,0	cm <sup>3</sup> /1000 strokes	ĺ	max. 2,0
1.5 Full-speed regulation	100	min. 35,0	cm³/1000 strokes		
1.6 Start	2700	6,0-12,0	cm <sup>2</sup> /1000 strokes		1
1.7 Load-dependent port-closing	-				

2. Test Spe	ecifications	checking values in brackets (	)		
2.1 Timing device	n = rev/min	1000 0,8-1,6 (0,5-1,9)	1500 (2,3-3,7)	2400 5,7-6,5 (5,4-6,8)	
2.2 Supply pump	n = rev/min bar (kgf/cm²)	609 2,8-3,4		2400 7,7-8,3	
Overflow delivery n = rev/min cm3/10 s		600 55-138 (40-153)	2400 55-138 (40-153)		

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kg1/cm²)
End stop	2800	max. 4,0	
	2700	(5,0-13,0)	
	2400	22,0-24,0 (20,7-25,3)	
	1500	(26,7-31,3)	
	750	26,0-29,0 (24,5-30,5)	
switch-off	70-400	0	
Idle stop ·	375 600 400	(4,0-12,0) max. 4,0 min. 20,0	
stop	500	max. 25,0	
2.4 Solenold	max, cut in voltag	* xxx min. 10.V rated voltage 12V.	I

3. Dimen	ISIONS for assembly and adjustment mm
К	3,2-3,4
KF	6,4-6,6
MS	1,5-1,7
svs	3,6
A B	
Observations	

## Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 VWW 2,4 k 2

2. Edition

cil-150 4:13

VE 6/10 F 2400 L 32-3

0 460 406 038

Overflow temperature 45° C

company: VW engine: 087/10

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

**Test Instructions and Test Equipment** 

Pre-stroke setting m

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
A A 21-1 - dayler A 1	1500	2,8-3,2	mm		
1.1 Timing device travel	1500	5,2-5,8	bar (kgf/cm²)		
1.2 Supply-pump pressure	1500	28,5-29,5	cm <sup>3</sup> /1000 strokes		max. 2,5
1.3 Full-load delivery with charge-air pressure Full-load delivery without	-		cm <sub>2</sub> /1000 strokes		
charge-air pressure  1.4 Idle regulation	375	6,0-10,0	cm³/1000 strokes		max. 2,0
1.5 Full-speed regulation	100	min. 35	cm <sup>3</sup> /1000 strokes		
1.6 Start	2700	6,0-12,0	cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	-				

2.1 Timing device	ww u = tev/wju	1000	1500 2,3-3,7) <b>5</b>	2400 5,7-6,5 (5,4	-6,8)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,8-3,4		2400 7,7-8,3	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	600 55-138 (40-153)		2400 55-138 (40	•
2.3 Fuel deliveries				3. Dimen	Bions for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2800 2700 2400 1500 750	max. 4,0 (5,0-13,0) 22,0-24,0 (20,7-25,3) (26,7-31,5) 26,0-29,0 (24,5-30,5)		K KF MS SVS	3,2-3,4 6,4-6,6 1,5-1,7 3,6
switch-off elektr. mech.	70-400 2400	0 0		A B	
End stop	600 375 400 500	max. 4,0 (4,0-12,0) min. 20,0 max. 25,0		Observations	`
2.4 Solenoid	max, cut-in volta	90 xxx min. 10 V	.I		

Test Specifications Distributor-type Fuel-injection Pumps

2. Test Specifications checking values in brackets (

46

WPP 001/4 REN 2,0 b

5. Edition

Testoil-ISO 4113

VE 4/9 F 2250 R 41

0 460 494 027

Overflow temperature 45° C

supersede 10.84 company: Renault engine: 852

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1400	4,4-4,8	mm		
1.2 Supply-pump pressure	1400	4,9-5,5	bar (kgf/cm²)		
1 3 Full-load delivery with	-	-	cm <sup>3</sup> /1000 strokes		
charge-air pressure Full-load delivery without	1400	39,5-40,5	cm³/1000 strokes		2,5 (3,0)
charge-air pressure 1.4 Idle regulation	400	7,0-11,0	cm³/1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2400	17,0-23,0	cm³/1000 strokes		
1.6 Start	100	min. 52,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	1400	-			

2.1 Timing device	n = rev/min mm	1000 2,6-3,4 (2	,3-3,7)	1400 (3,9-5,3)	6,	2000 7-7,5 (6,4-	-7,8)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	1000 3,9-4,5				2000 6,5-7,1	
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (4	0-153)		5	2250 5-138 (40-1	53)
2.3 Fuel deliveries						3. Dimen	Sions tor assembly and adjustment
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air bar (kgf/cm		Designation	mm
End stop	2550 2400 2200 2100 1400 1000	max. 2,0 32,8-34,8 33,8-35,8 36,8-39,8	(16,0-24 (31,5-36 (32,5-37 (37,7-42 (35,3-41	,1) ,1) ,3)		K KF MS SVS	3,2-3,4 5,7-5,9 1,4-1,6 max. 3,5
switch-off	2500	0				A XK	20,1-22,1 9,5-13,3
End stop	650 400 320 430	max. 5,0 min. 45,0 max. 45,0	(5,0-1	3,0)		Observations	
2.4 Solenoid	max. cut-in voltag	* xxx min.	10,0 V e 12V.				

# Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 PEU 2,3 b 3

2. Edition

VE 4/10 F 2075 R 62

DHK: 1 688 901 022/130 bar

Test pressure line 6x2x450/1 680 750 073

Pre-stroke setting

0 460 404 011

Overflow temperature 45° C

En

3.84 supersedes Peugeot

XD 2 S

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers mm

Test Instructions and Test Equipment

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
	1400	5,2-5,6	mm	0,67	
1.1 Timing device travel	1400	5,2-5,8	bar (kgf/cm²)	0,67	
1 2 Supply-pump pressure	1250	46,5-47,5	cm <sup>3</sup> /1000 strokes	0,67	2,0 (3,0)
1.3 Full-load delivery with charge-air pressure Full-load delivery without	500	36,0-37,0	cm³/1000 strokes	0	
charge-air pressure	375	12,0-16,0	cm <sup>3</sup> /1000 strokes	0	2,0 (3,0)
1.5 Full-speed regulation	2400	12,0-18,0	cm <sup>3</sup> /1000 strokes	0,67	
1.6 Start	100	min. 57,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	1400	-			

2.1 Timing device	n = rev/min	750		1400	2000		
LDA=0,67 bar	mm	1,7-2,5(1,	,4-2,8) (4	,7-6,1)	7,9-8,7(7,6-9,0)		
2.2 Supply pump	p = rev/min	400			2000		
LDA=0,67 bar	bar (kgf/cm²)	2,1-2,7		7,1-7,7			
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 (0 bar) 55-138(40-153)			2075 (0,67 bar) 55-138(40-153)		
2.3 Fuel deliveries					3. Dimensions		
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm	
End stop	2500	5,0-11,0	(4,0-12,0)		к	Maß K 1	
	2400 2000	44,0-47,0	(11,0-19,0) (43,2-47,8)	0,67	KF	5,7-5,9	
	1250 750 *		(44,7-49,3) (40,7-45,3)	0,67	MS	0,9-1,1	
	500	42,5-43,5	(34,2-38,8)		svs	max. 4,6	
switch-off					^ XK	20,2-22,2	
	2075	0			B XL	9,5-12,8	
idle stop	375 480 1250	max. 1,0 max. 2,0	(10,0-18,0)		Observations  * Manifold-pressure compensator stroke = 3,5 mm Correction at the adjusting nut. (46)		
End stop	320 420	min. 52 max. 52					
2.4 Solenoid	max.cutin voltage xxx min. 10 V					·	

WPP 001/4 PEU 2,3 b 2

2. Edition

VE 4/10 F 2125 R 62-2 DHK: 1 688 901 022/130 bar

Test pressure line 6x2x450/1 680 750 073

Pre-stroke setting

Overflow temperature 45° C

supersedes 3.84 company: Peugeot

engine: XD 2 S 81 A

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1400	5,2-5,6	mm	0,67	
1.2 Supply-pump pressure	1400	5,2-5,8	bar (kgf/cm²)	0,67	
1.3 Full-load delivery with	1250	46,5-47,5	cm³/1000 strokes	0,67	2,0 (3,0)
charge-air pressure Full-load delivery without	500	36,0-37,0	cm³/1000 strokes	0	
charge-air prossure	425	12,0-16,0	cm³/1000 strokes	0	2,0 (3,0)
t.5 Full-speed regulation	2450	12,0-18,0	cm³/1000 strokes	0,67	
1.6 Start	100	min. 57,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	1400	-			

2. Test Spec	cifications	checking values in brackets ( )		
2.1 Timing device	n = rev/min	750	1400	2000
.DA=0,67 bar	mm	1,7-2,5 (1,4-2,8)	(4,7-6,1)	7,9-8,7(7,6-9,0)
2.2 Supply pump	n = rev/min	400		2000
.DA=0,67 bar	bar (kgf/cm²)	2,1-2,7	· · · · · · · · · · · · · · · · · · ·	7,1-7,7
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 (0 bar) 55-138 (40-153)		2125 (0,67 bar) 55-138 (40-153)
2.3 Fuel deliveries	<u> </u>			3. Dimensions
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>2</sup> /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation and adjustment mm
End stop	2550	5,0-11,0 (4,0-12,0)		K Maß K 1
	1450	(11,0-19,0) 44,0-47,0 (43,2-47,8)	0,67	
	2000 1250	44,0-4/,0 (43,2-47,8)	0,67	KF 5,7-5,9
	750 *	(44,7-49,3) 42,5-43,5 (40,7-45,3)	0,67	MS 0,9-1,1
	500	(34,2-38,8)	0	svs max.4,5
switch-off				^ XK 20,2-22,2
	2125	0		B XL 9,5-12,8
die stop	425	(40.0.40.0)		Observations
••	590	(10,0-18,0) max. 1,0	1	*Manifold-pressure compensator stroke
	1250	max. 2,0		= 3.5 mm
End	320	min. 52	1	Correction at the
stop	420	max. 52		adjusting nut. (46)
2.4 Salenold	max. cut-in voltage	xxx min. 10 V rated voltage 12V.		

£\$.

41)

Test Specifications
Distributor-type
Fuel-injection Pumps

46

WPP 001/4 PEU 2,5 a

3. Edition

VE 4/9 F 2250 R 84 O 460 494 079

Pre-stroke setting

Overflow temperature 45° C

supersedes Peugeot company: XD 3

Test pressure line 6x2x450/1 680 750 073

mm

All test specifications are valid only for Bosch Fuel-injection Pump Test Beaches and Testers

**Test Instructions and Test Equipment** 

see VDT-W-460/...

I. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	5,4-5,8	mm		
1.2 Supply-pump pressure	1500	5,5-6,1	bar (kgf/cm²)		
1.3 Full-load delivery with charge-air pressure	1500	37,9-38,9	cm³/1000 strokes		2,5 (3,0)
Full-load delivery without	-	-	cm <sup>3</sup> /1000 strokes		
charge-air pressure  1.4 Idle regulation	400	6,0-10,0	cn/9/1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2325	25,5-31,5	cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 45	cm <sup>3</sup> /1000 strokes		
1 7 Load-dependent port-closing	1500	_			

2. Test Spe	cification	S checking values in brackets (	)		
2.1 Timing device	n = rev/min	700 0,6-1,4(0,3-1,7) 2,5	1000 5-3,1(2,1-3,5)	1500 (4,9-6,3) 8	2000 ,1-8,9(7,8-9,2)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,1-2,7		220 7 <b>,</b> 5-8	-
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	400 55-138 (40-153)		225 55-138	0 (40-153)
2.3 Fuel deliveries Speed control lever	Rot. speed	Fuel delivery	Charge air press.	3. Dime	nsions for assembly and adjustment mm

2.3 Fuel deliveries				3. Dime
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. ber (kgf/cm²)	Designation
End stop	2550 2450 2325 2200 2000 1500 1000 600	max. 2,0 4,5-12,5 (4,5-12,5) (24,5-32,5) 39,9-41,9 (38,7-43,1) 39,2-41,2 (38,0-42,4) (36,2-40,6) 37,2-39,8 (36,3-40,7) 35,8-38,8 (34,3-40,3)		K KF MS SVS
switch-off				A
Idle stop Endanschlag	400 440 350 450	(4,0-12,0) max. 2,0 min. 45 max. 45		Observations
2.4 Solenoid	max. cut-in softs	90 xxx min. 10 V K Nennspannung 12 V		

K 1

5,2-5,4 0,9-1,2 3,3

WPP 001/4 IBE 4,0 a 1

1. Edition

estoil-130 4113

VE 4/12 F 1350 R 103-1

Overflow temperature 45° C

supersedes-

company: Iberica T 4.236

0 460 424 017

DHK: 1 688 901 020/172 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

**Test Instructions and Test Equipment** 

0,3

mm = 0,02(0,04)

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1000	4,2-4,6	mm	0,8	
1.2 Supply-pump pressure	1000	5,5-6,1	bar (kgf/cm²)	0,8	
1.3 Full-load delivery with	1000	90,5-91,5	cm³/1000 strokes	0,8	3,5 (4,5)
charge-air pressure Full-load delivery without	500	63,5-64,5	cm³/1000 strokes	0	
charge-air pressure 1.4 Idle regulation	300	7,0-11,0	cm³/1000 strokes	0	3,5 (4,5)
1.5 Full-speed regulation	1450	52,0-58,0	cm³/1000 strokes	0,8	
1.6 Start	100	min. 70	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-				

2. Test Spec	ifications	checking values in br	ackets ( )			
2.1 Timing device LDA = 0,8 ba	n = rev/min mm	500 0,7-1,5	(0,4-1,8)	1000 (3,7-5,1)	5,8-6,6	1300 (5,7-6,9)
2.2 Supply pump LDA = 0,8 bar	n = rev/min bar (kgf/cm²)		500 3,3-3,9		1300 6,7-7,3	
Overflow delivery LDA = 0,8 bar	n = rev/min cm²/10 s	41	500 -83 (26-98)	5	1300 55-138 (40-1	53)
2.3 Fuel deliveries	<u> </u>				3. Dimen	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>2</sup> /1000 strokes		Charge-air press. bar (kgl/cm²)	Designation	and adjustment
End stop  switch-off	1650 1600 1550 1450 1300 1000 700 * 500 500	max. 2,0 min. 3,0 16,5-23,5 83,5-86,5 86,0-87,0 85,0-88,0	(15,0-25,0 (50,0-60,0 (80,0-90,0 (88,0-94,0 (82,8-90,2 (82,8-90,2 (60,3-67,7	0,8 0,8 0,8 0,8 0,8 0,8 0,4	K KF MS SVS	5,2-5,4 1,1-1,3 5,0
End stop	303 350 430 110 210	max. 1,5 comper		* Manifo	ld-pressure sator stroke mm	
2.4 Solenoid	max. cut-in voltage	0				

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WPP 001/4 VMA 3,6 e 2. Edition

En

150 4113

VE6/11/F1900L113

Overflow temperature 45° C

supersedes 8.84

0 460 416 022

company: Motori VM engine: HR 692 HT/9

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0.2

2. Test Specifications checking values in brackets (

max. cut-in voltage

test voltage

 $_{mm} \stackrel{+}{=} 0.02(0.04)$ 

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	4,7-5,3	mm	0,65	
1.2 Supply-pump pressure	1800	6,6-7,2	bar (kgf/cm²)	0,65	
1.3 Full-load delivery with	1500	47,5-48,5	cm³/1000 strokes	0,65	
charge-air pressure Full-load delivery without	600	36,0-40,0	cm³/1000 stroķes	0	3,5 (4,0)
charge-air pressure 1.4 Idle regulation	450	16,0-14,0	cm³/1000 strokes	0	
1.5 Full-speed regulation	2000	40,5-47,5	cm³/1000 strokes	0,65	3,0 (4,0)
1.6 Start	100	min. 40,0	cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	-			·	

2.1 Timing device LDA=0,65 bar	n = rev/min	1000 15	500 3-5-7) 6.5:	1800 -6,9 (6,0-7	.4)
2.2 Supply pump LDA=0,65 bar	n = rev/min bar (kgf/cm²)  n = rev/min	400 1,7-2,3 400		1900	
2.3 Fuel deliveries	cm <sup>3</sup> /10 s	41-83(26-98)	33-	138 (40-153 <b>3. Dime</b> r	
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>2</sup> /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	and adjustment
End stop	2200 2100 2000 1900 600	max 1,5 15,0-21,0(13,5-22,5) (39,5-48,5) 45,2-47,8(43,9-49,1) (45,4-50,6) 39,0-42,0(37,1-43,9) (34,6-41,4)	0,65 0,65 0,65 0,65 0,26	KF MS SVS	- 6,4-6,6 0,9-1,1 2,4 20,2-22,2 11,9-15,2
switch-off			·	B	
End stop	700 550 450 350 450	max 1,5 2,0-8,0(0,5-9,5) (7,5-16,5) min 40 max 45		Manifold-pressure compensator stroke = 4,0 mm	

2.4 Solenoid

min. 10 Volt

rated voltage

46

WPP 001/4 MAN 5,6 h 2 1. Edition

101-150 41:3

VE 6/12 F 1400 R 120-4 0 460 426 031 Overflow temperature 45° C

supersedes company:

engine:

MAN DO226 MC

All test specifications are valid only for Bosch Fuel-Injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting

0,2 <sub>mm</sub>

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	800	3,5-3,9	mm	8,0	
1.2 Supply-pump pressure	800	5,1-5,7	bar (kgf/cm²)	0,8	
1.3 Full-load delivery with	630	85,5-86,5	cm³/1000 strokes	0	
charge-air pressure Full-load delivery without	1000	112,0-113,0	cm <sup>3</sup> /1000 strokes	0,8	4,0
charge-air pressure  1.4 Idle regulation	300	10,0-16,0	cm³/1000 strokes	0	3,5
1.5 Full-speed regulation	100	min. 70,0	cm³/1000 strokes	0	
1.6 Start	1440	92,0-100,0	cm <sup>3</sup> /1000 strokes	0,8	
1.7 Load-dependent port-closing					

2. Test Spe	cifications	checking values in brackets (	)		
2.1 Timing device	n = rev/min	500	800	1100	)
LDA=0,8bar	mm	1,2-2,0(0,9-2,3)	(3,0-4,4)	4,9-5,7	(4,6-6,0)
2.2 Supply pump	n = rev/min	500		1100	)
LDA=0,8bar	bar (kgf/cm²)	3,8-4,4	·	6,1-	5,7
Overflow delivery .	n = rev/min cm³/10 s	500		1400	
2.3 Fuel deliveries		55-138(40-153)		55-138(4	
Speed control lever	Rot. speed	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgl/cm²)	Designation	for assembly and adjustment mm
End stop	1650	max. 1.0	0,8	к	-
	1550 1440	26,0-34,0 (25,0-35, (91,0-101	.0) 0.8	KF	5,7 - 6,0
	1400	108,0-112,0(107,0-113	8,0 0,8	MS	1,0 - 1,2
	1000	(109,5-115	5,5) 0,8		','
	800	110,0-114,0(109,0-115		svs	
	<b>630</b>	112,0-116,0(110,3-117	7,7) 0,8 0,7) 0,4	i	ŀ
	* 630 630	106,5-107,5(103,3-110 (82,3-89,	7) 0,4	1	
switch-off	030	(02,5203,		A	25,0 - 27,
				В	13,5 - 16,
die stop	300	(8,0-18,	,0)	Observations	
••	350	max. 5,0			-pressure
	400	max. 1,0		compensa	tor stroke
End	230	min. 100		= 4,5 mm	
stop	400	max. 100			
2.4 Solenoid	max. cut-in voltag	•			•
	test voltage			1	

WPP 001/4 PEU 2,5 d

1. Edition

Testoil-ISO 411

VE 4/9 F 2125 R 126-3

Overflow temperature 45° C

company: engine:

0 460 494 178

Test pressure line

DHK: 1 688 901 022 / 6x2x450/1 680 750 073 All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	5,8-6,2	mm	0,8	
1.2 Supply-pump pressure	1500	5,6-6,2	bar (kgf/cm²)	0,8	
1.3 Full-load delivery with	1500	53,7-54,7	cm³/1000 strokes	0,8	max. 2,5
charge-air pressure Full-load delivery without	500	41,3-42,3	cm³/1000 strokes	0	
charge-air pressure  1.4 Idle regulation	400	17,0-21,0	cm <sup>3</sup> /1000 strokes	0	max. 2,0
1 5 Full-speed regulation	2350	26,5-32,5	cm³/1000 strokes	0,8	
1.6 Start	100	min. 67	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-				

2. Test Spec	ifications	checking values in I	brackets ( )			
2.1 Timing device DA = 0,8 bar	n = rev/min mm	750 0,8-1,6 (	0,5-1,9)2,5-3	1000 3,3(2,2-3,6)	1500 (5,3-6,7)	2000 7,8-8,6(7,5-8
2.2 Supply pump .DA = 0,8 bar Overflow delivery	n = rev/min bar (kgf/cm²)  n = rev/min cm²/10 a	500	,0 (0 bar) (26-98)	750 3,4-4,0 2125 55-138 (4		
2.3 Fuel deliveries Speed control lever	Rot. speed	! Fuel delivery	(20-30)	Charge-air press.	3. Dimen	ISIONS for assembly and adjustment mm
End stop  switch-off	2650 2350 2250 2000 1500 1000 750 *	max. 1,0 38,5-44,5 52,2-54,2 51,8-54,8 46,8-47,8	(25,5-33,5) (37,5-45,5) (51,0-55,4) (52,0-56,4) (51,1-55,5) (44,3-50,3) (38,8-44,8)	0,8 0,8 0,8 0,8 0,8 0,8 0,8	K KF MS SVS	K1 5,2-5,4 1,2-1,4 5,5
End stop	400 450 550 230 330	5,0-9,0 max. 3,5 min. 60 max. 60	(15,0-23,0) (3,0-11,0)		Observations  * Manifold-pressure compensator stroke = 4,5 mm 24 V pushing electromagnet	
2.4 Solenoid	mex. cut-in voltage test voltage	·				

46

WPP 001/4 VWW 2,0 i 3

3. Edition

0 4:13

estoil-130

VE 5/10 F 2400 L 137 0 460 405 030

Overflow temperature 45° C

supersedes7.84 company: VWW

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

engine: 153

Pre-stroke setting

0.14

+ 0,02 (0,04)

Test Instructions and Test Equipment

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1400	2,4-2,8	mm		
1.2 Supply-pump pressure	1400	5,0-5,6	bar (kgf/cm²)		
1.3 Full-load delivery with	-		cm³/1000 strokes		
charge-air pressure Full-load delivery without	1400	<b>35,0-36,0</b>	cm³/1000 strokes		2,5 (3,0)
charge-air pressure  1.4 Idle regulation	375	6,0-10,0	cm³/1000 strokes		2,0 (3,0)
1.5 Full-speed regulation	2650	6,0-12,0	cm³/1000 strokes		
1.6 Start	100	min. 50,0	cm³/1000 strokes		
1.7 Load-dependent port-closing					

2. Test Spe	cifications	checking values in brackets (	)	
2.1 Timing device	n = rev/min mm	1000 1,3-2,1(1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9 (4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	500 2,8-3,4		2400 7,3-7,9
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (40-153)		2400 55-138 (40-153)

	1			
2.3 Fuel deliveries				
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgf/cm²)	5
End stop	2800 2650 2400 1400 750	max. 3,0 (5,0-13,0) 28,0-30,0(26,8-31,2) (31,8-36,2) 24,5-27,5(23,0-29,0)		
switch-off mech. elektr.	2400 400	0 0	A	
Idle stop	375 450	(4,0-12,0) max. 3,0		C
End stop	400 500	min.15,5 max.23,5		
2.4 Solenoid	max. cut-in volt	lage xxx min. 10,0 V		

19979994xx rated voltage 12V

Designation	tor assembly and adjustment mm
K KF MS	5,7-6,0 1,7-1,9 2,8
svs	
В	

WPP 001/4 VWW 2,0 i 2

3. Edition

stoil-180 47-13

VE 5/10 F 2400 L 137-1

Overflow temperature 45° C

supersedes7.84

company: VWW

0 460 405 032

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0,14

mm + 0,02 (0,04)

see VDT-W-460/...

1. Settings	Rot, speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1400	2,4-2,8	mm		
1.2 Supply-pump pressure	1400	5,0-5,6	bar (kgf/cm²)		
1.3 Full-load delivery with	-		cm³/1000 strokes		
charge-air pressure Full-load delivery without	1400		cm³/1000 strokes		2,5 (3,0)
charge-air pressure 1.4 Idle regulation	375	6,0-10,0	cm³/1000 strokes		2,0 (3,0)
1.5 Full-speed regulation	2650	6,0-12,0	cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 50,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	-				

2. Test Spe	cifications	checking values in brackets (	)		
2.1 Timing device	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1400 (1,9-3,3)	2400 5,1-5,9	(4,8-6,2)
2.2 Supply pump	n = rev/min bar (kgl/cm²)	500 2,8-3,4		2400 7,3-7,9	
Overflow delivery	n = rev/min cm³/10 s	500 55-138 (40-153)		2400 55-138	(40-153)

	cm <sup>3</sup> /10 8	55-138 (40-153)		
2.3 Fuel deliveries				3. Di
Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)	Designat
End stop	2800 2650 2400 1400 • 750	max. 3,0 (5,0-13,0) 28,0-30,0(26,8-31,2) (31,8-36,2) 24,5-27,5(23,0-29,0)		K KF MS
switch-off mech. elektr.	2400 400	0		A 8
End stop	375 450 400 500	(4,0-12,0) max. 3,0 min.15,5 max.23,5		Observa
2.4 Solenoid	max. cut-in volt	xxx min. 10,0 V x rated voltage 12V.		

	38 (40-153)
3. Dimens	IONS for assembly and adjustment mm
K KF MS SVS	5,7-6,0 1,7-1,9 2,8
A B	
Observations	

G8

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WPP 001/4 VWW 1,6 W 13

1. Edition

En

Festoil-ISO 4113

VE 4/9 F 2400 R 138-4 0 460 494 183

Pre-stroke setting

Overflow temperature 45° C

supersedes company:VW engine: 086

Test Instructions and Test Equipment

see VDT-W-460/...

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	2,1-2,5	mm		
1.2 Supply-pump pressure	1500	4,3-4,9	bar (kgf/cm²)		
1.3 Full-load delivery with	-		cm <sup>3</sup> /1000 strokes		
charge-air pressure Full-load delivery without	1500	32,7-33,7	cm³/1000 strokes		max. 2,5
charge-air pressure  1.4 Idle regulation	475	6,0-10,0	cm³/1000 strokes		max. 2,0
1.5 Full-speed regulation	2600	11,0-17,0	cm³/1000 strokes		
1.6 Start	100	min. 35,0	cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing					

2.1 Timing device	n = rev/min	1100	1500	2400
Z. I Tilling Gevice	mm	0,4-1,2 (0,1-1,5)	(1,6-3,0)	6,0-6,8 (5,7-7,1)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	600 2,2-2,8	2400 6,6-7,2	
Overflow delivery	n = rev/min cm³/10 s	600 41-83 (26-98)	2400 55-138 (40-153	
				3 Dimensions

	1	55 (5		
2.3 Fuel deliveries				
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press bar (kgf/cm²)
End stop	2800 2600 2400 1500 600	max. 3,0 27,5-29,5 21,7-24,7	(10,0-18,0) (26,3-30,7) (31,0-35,4) (20,2-26,2)	
switch-off elektr.	400	0		
End stop	475 650 1200 400 500	max. 7,5 max. 5,0 min. 18,0 max. 23,5	(4,0-12,0)	
2.4 Solenoid	max. cut-in volt	age xxx min. x rated voltage	10. Volt	J

3. Dimen	sions for assembly and adjustment mm
K KF MS SVS	3,2-3,4 5,7-5,9 1,3-1,5 4,8
A B Observations	
	,

BOSCH

WPP 001/4 VWW 1,6 W 12

1. Edition

1-150 4-13

VE 4/9 F 2250 R 149-3

0 460 494 184

Overflow temperature 45° C

supersedes VW company: 085 T

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

**Test Instructions and Test Equipment** 

Pre-stroke setting	•	mm	

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel  1.2 Supply-pump pressure  1.3 Full-load delivery with charge-air pressure Full-load delivery without charge-air pressure  1.4 Idle regulation  1.5 Full-speed regulation  1.6 Start  1.7 Load-dependent port-closing	1500 1500 1500 600 475 2525 100	3,3-3,7 4,6-5,2 43,5-44,5 23,5-24,5 6,0-10,0 9,0-15,0 min. 35	mm bar (kgf/cm²) cm²/1000 strokes cm²/1000 strokes cm²/1000 strokes cm²/1000 strokes	0,75 0,75 0,75 0 0 0,75	max. 2,5

2.1 Timing device	n = rev/min	1000		1500		2250	
21 Jiming device ar	mm		1,3-2,1 (1,0-2,4)		(2,8-4,2) 6,1-6,9 (5,8-7,2)		
2.2 Supply pump	n = rev/min	600			2250		
LDA=0,75 bar	bar (kgf/cm²)	2,5-3,1	· · · · · · · · · · · · · · · · · · ·		6,5-7,1		
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	600 (0 bar) 41-83 (26-98)		2250 (0,75 bar) 55-138 (40-153)			
2.3 Fuel deliveries	<u> </u>				3. Dimen	for assembly	
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm	
End stop	2750 2525	max. 3,0	(8,0-16,0)	0,75 0,75	к	3,2-3,4	
	2250 1500	38,0-40,0	(36,8-41,2) (41,8-46,2)		KF	5,7-5,9	
	1000*	33,5-34,5		0,30	MS	1,2-1,4	
	600 600	31,5-34,5	(30,0-36,0) (21,0-27,0)		svs	4,1	
switch-off					A		
elektr.	400	0			8		
dle stop *	475	40	(4,0-12,0		Observations		
-	1200	max. 4,0		l i		d-pressure	
End stop	400 500	min. 22 max. 30			= 4,5 i	sator stroke mn	
2.4 Solenold	max. cut-in voltag	* xxx 10 V rated voltage	. 10k				

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WPP 001/4 REN 2,0 f

4. Edition

00 A 100

VE 4/9 F 2250 R 158 O 460 494 145 Overflow temperature 45° C

supersedes10.84 company: Renault engine: J85-706

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting - m

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1400	4,4-4,8	mm		
1.2 Supply-pump pressure	1400	4,9-5,5	bar (kgf/cm²)		
1.3 Full-load delivery with	-	-	cm <sup>3</sup> /1000 strokes		
charge-air pressure Full-load delivery without	1400	39,5-40,5	cm <sup>3</sup> /1000 stroķes		2,5 (3,0)
charge-air pressure  1.4 Idle regulation	400	7,0-11,0	cm <sup>3</sup> /1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2400	17,0-23,0	cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 52,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	1400				

2.1 Timing device	n = rev/min	4000		400	2000	
	mm	1000 2,6-3,4 (2		1400 ,9-5,3) 6.	7-7,5 (6,4	-7 <b>8</b> 1
2.2 Supply pump	n = rev/min bar (kgf/cm²)	1000		, 9-3,37 0	2000 6,5-7,1	-7,07
Overflow delivery	n = rev/min cm³/10 s	500 55-138 (4	0-153)		2250 55-138 (40-1	153)
2.3 Fuel deliveries					3. Dimer	ISIONS for assembly and adjustment
Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press.	Designation	mm
End stop	2550 2400 2200 2100 1400 1000	max. 2,0 32,8-34,8 33,8-35,8 36,8-39,8	(16,0-24,0) (31,5-36,1) (32,5-37,1) (37,7-42,3) (35,3-41,3)		K KF MS SVS	3,2-3,4 5,7-5,9 1,4-1,6 max. 3,6
switch-off	2500	0			A B	
idle stop	650 400	max. 5,0	(5,0-13,0)		Observations	
End stop	320 430	min. 45,0 max. 45,0				
2.4 Solenoid	max. cut-in voltage	rated voltage	10 V ne 12V.			

**BOSCH** 

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WPP 001/4 CUM 5,9 f

2. Edition

Oil-ISO 4113

VE 6/12 F 1100 R 159-8

Overflow temperature 45° C

supersed & .84 company Cummins engine: 6 BT - 590

DHK: 1 688 901 016/207+3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

0 460 426 050

0,3

mm = 0,02 (0,04)

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	750	3,1-3,5	min		
1.2 Supply-pump pressure	750	3,7-4,3	bar (kgf/cm²)		
1.3 Full-load delivery with	-	-	cm <sup>3</sup> /1000 strokes		
charge-air pressure Full-load delivery without	900	73,0-74,0	cm³/1000 strokes		4,0 (4,5)
charge-air pressure 1.4 Idle regulation	375	18,5-24,5	cm³/1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1175	28,0-34,0	cm³/1000 strokes		
1.6 Start	100	min. 97,0	cm <sup>2</sup> /1000 strokes		
1.7 Load-dependent port-closing					

2. Test Spe	cifications	checking values in brackets (	)	
2.1 Timing device	n = rev/min mm	400 0,3-1,1 (0-1,4)	750 (2,6-4,0)	1100 5,4-6,2 (5,1-6,5)
2.2 Supply pump	n = rev/min bar (kgf/cm²)	400 2,2-2,8		1100 5,2-5,8
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	400 55-138 (40-153)		1100 55-138 (40-153)
	<u> </u>			2 Dimensions

	CIN-710'S	100 100 (11	,	00
2.3 Fuel deliveries				
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	1250 1175 1100 900 750 400		(26,0-36,0) (64,5-70,5) (70,5-76,5) (72,8-80,2) (87,3-94,7)	
switch-off				
ELAB	375	0		
End stop	300 375 450 130 200		(46,0-56,0) (16,5-26,5)	
2.4 Solenoid	mex. cut-in volt	xxx min.	10 V	L

3. Dimer	ISIONS for assembly and adjustment mm
K	-
KF	5,1-5,3
MS	1,4-1,6
svs	1,2
A B	
Observations	

WPP 001/4 PEU 1,9 b

5. Edition

Pre-

VE 4/9 F 2300 R 162

0 460 494 153

Overflow temperature 45° C

supersed Peugeot company XUD 9 engine:

DHK: 1 688 901 022/130 bar

Test pressure line 6x2x450/1 680 750 073

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel 1.2 Supply-pump pressure 1.3 Fulf-load delivery with charge-air pressure Fulf-load delivery without charge-air pressure 1.4 Idle regulation 1.5 Fulf-speed regulation 1.6 Start	1250 1250 - 1250 A 550 2400 100	3,2-3,6 3,9-4,5 - 29,5-30,5 2,5-3,5 20,0-26,0 min. 44,0	mm bar (kgf/cm²) cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes cm³/1000 strokes		2,5 (3,0) B 2,0 (3,0)
1.7 Load-dependent port-closing	1250	-			

0.4 Timing daying		700	1250	2000	· · · · · · · · · · · · · · · · · · ·
2.1 Timing device	n = rev/min mm	0,2-1,0 (0-1,3)	(2,7-4,1) 7,5-	8,3 (7,2-8	,6)
2.2 Supply pump	n ≈ rev/min bar (kgf/cm²)	700 2,3-2,9	2000 5,9-6,5		
Overflow delivery	n = rev/min cm <sup>2</sup> /10 s	500 41-83 (26-98)	2300 55-138 (40-	-153)	
2.3 Fuel deliveries				3. Dimer	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	Charge-air press. bar (kgt/cm²)	Designation .	and adjustment mm
End stop	2650 2500 2400 2250 2000 1250 700	max. 7,0 11,5-17,5 (10,5-18, (19,0-27, 30,0-32,0 (28,8-33, 30,5-32,5 (29,3-33, (27,8-32, 29,5-32,5 (28,0-34,	,0) ,2) ,7) ,2)	K KF MS SVS	3,2-3,4 5,7-6,0 1,3-1,5 3,0
switch-off	2300	0		8	
End Stop	A 550 B 375 C 470 200 300	2,5-3,5 8,5-10,5 (5,5-13, 8,0-10,5 (5,5-13, min. 40,0 max. 35,0	,5) ,0)	setting	il delivery i Idle set= LFG) as per 160/135
2.4 Solenoid	max. cut in voltag	xxx min. 10 V rated voltage 12 V.			

WPP 001/4 VMA 3.6 e 1

1. Edition

Testoil-ISO 4113

VE 6/11 F 1900 L 178

Overflow temperature 45° C

0 460 416 035

supersedes Motori-VM HR 692 HTJ/9

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers mm =0,02(0,04)

Test Instructions and Test Equipment

Pre-stroke setting

0,2

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	3,8-4,2	mm	0,75	
1.2 Supply-pump pressure	1500	4,9-5,5	bar (kgf/cm²)	0,75	
1.3 Full-load delivery with	1500	59,0-60,0	cm³/1000 strokes	0,75	3,5(4,0)
charge-air pressure Full-load delivery without	600	42,0-43,0	cm³/1000 stroķes	0	
charge-air pressure 1.4 Idle regulation	350	20,0-24,0	cm³/1000 strokes	0	3,5(4,0)
1.5 Full-speed regulation	2000	44,0-50,0	cm³/1000 strokes	0,75	
1.6 Start	100	min. 40,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-				·

2. Test Spec	cincations		rackets ( )			
2.1 Timing device LDA=0,75 bar	n = rev/min mm	1000 0,9-1,7 (	0,6-2,0)	1500 (3,3-4,7)		50 (5,3-6,7)
2.2 Supply pump LDA=0,75 bar	n = rev/min ber (kgf/cm²)		600 2,0-2,6		1850 6,0-6,6	
Overflow delivery .DA=0,75 bar	n = rev/min cm <sup>3</sup> /10 s	41-1	600 83 (26-98)	55	1900 5-138 (40-15	3)
2.3 Fuel deliveries Speed control lever	Rot. speed	Fuel delivery		Charge-air press.	3. Dimen	SiONS tor assembly and adjustment   mm
End stop	2130 2000 1850 1500 600* 600	1,0-9,0 55,0-57,6 46,0-47,0	(0,5-9,5) (42,5-51,5 (53,6-60,0 (56,8-62,2 (43,1-49,9 (39,1-45,9	0,75 2,0,75 3,30	K KF MS SVS	- 6,4-6,6 0,9-1,1 4,3
switch-off					A B	
End stop	350 400 450 390 500	7,5-12,5 max. 4,0 min. 49 max. 44	(17,5-26,5 (5,5-14,5)			old-pressure nsator strok
2.4 Solenoid	mex. cut-in volteg	xxx min. 1 rated yoltago	0 Volt			

Testoil-ISO 4113

WPP 001/4 PEU 2,5 c 1

1. Edition

VE 4/9 F 2075 R 180 0 460 494 158

1.7 Load-dependent port-closing

Overflow temperature 45° C

supersedes PSA-Peugeot

engine: XD 3 T

DHX: 1688 901 022 / Test pressure line 6x2x450/1 680 750 073

All test specifications are valid only for Bosch Fuel-Injection Pump Test Behches and Testers

1500

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	5,3-5,7	mm	0,8	
1.2 Supply-pump pressure	1500	5,2-5,8	bar (kgf/cm²)	0,8	
1.3 Full-load delivery with	1500	57,0-58,0	cm³/1000 strokes	0,8	2,5 (3,0)
charge-air pressure Full-load delivery without	500	42,0-43,0	cm³/1000 strokes	0	÷
charge-air pressure	400	7,0-11,0	cm³/1000 strokes	0	2,0 (3,0)
1.5 Full-speed regulation	2300	31,0-37,0	cm³/1000 strokes	0,8	
1.6 Start	100	min. 65	cm³/1000 strokes	0	

2. Test Spec	ifications	checking values in b	orackets ( )			·
2.1 Timing device LDA = 0,8 bar	n = rev/min mm	750 0,9-1,7	(0,6-2,0)	1500 (4,8-6,2)		(000 (7,6-9,0)
2.2 Supply pump LDA = 0,8 bar	n = rev/min bar (kgf/cm²)	200 1,1-1,	7	750 3,1-3,7	2000 6,6-7,2	
Overflow delivery	n = rev/min cm³/10 s	55-	500 138 (40-153)	5	2075 5-138 (40-15	3)
2.3 Fuel deliveries	L	<u> </u>			3. Dimens	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes	i	Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2600 2300 2200 2000 1500 1000 750* 500	53,5-56,5	(30,0-38,0) (42,0-50,0) (52,8-57,2) (55,3-59,7) (53,3-57,7) (46,5-52,5) (39,5-45,5)	0,8 0,8 0,8 0,8 0,3	K KF MS SVS	3,2-3,4 5,4-5,7 1,2-1,4 4,6
Idle stop *- ,.	400		(5,0-13,0)		Observations	
End stop	500 260 360	max. 3,0 min. 60 max. 60				-pressure tor stroke
2.4 Solv Told	max. cut-in voltage test voltage					

G15

WPP 001/4 FIA 1,98 1. Edition

VE 4/9 F 2100 L 184

Overflow temperature 45° C

company: Fiat

0 460 494 163

Pre-stroke setting

Test pressure line DHK: 1 688 901 022/130 bar: 6x2x450/1 680 750 073 "X 8/49

All test specifications are valid only for Boach Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	5,4- 5,8	mm	0,8	
	1500	6,1-6,7	ber (kgl/cm²)	0,8	
1.2 Supply-pump pressure 1.3 Full-load delivery with	1500	45,3-46,3	cm³/1000 strokes	0,8	2,5
charge-air pressure Full-load delivery without	800	37,8-38,8	cm <sup>9</sup> /1000 strokes	0	
charge-air pressure 1.4 Idle regulation	350	8,0-12,0	cm <sup>3</sup> /1000 strokes	0	2,5
1.5 Full-speed regulation	2400	15,0-21,0	cm <sup>3</sup> /1000 strokes	0,8	
1.6 Start	100	min. 57,0	cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	1500			0,8	

2. Test Spec	cifications	checking values in	brackets ( )			
2.1 Timing device	n = rev/min	800		1500	2000	
LDA=0.8 bar	mm	1,7-2,5(1,	4-2,8)	(4,9-6,3)	7,6-8,4(7	,3-8,7)
2.2 Supply pump	n = rev/min	400		800	2000	
LDA=0,8 bar	ber (kgf/cm²)	2,8-3,4		4,1-4,7	7,5-8,1	
Overtiow delivery	n = rev/min	600	0.			(0,8 bar)
	cm <sup>3</sup> /10 s	41-83(26-9	6)		55-138(40	-153)
2.3 Fuel deliveries					3. Dimens	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm*/1000 strokes		Charge-air press. ber (kgf/cm²)	Designation	and adjustment mm
End stop	2550	max. 5,0	(44 0 22 0)	0,8	к	3,2 - 3,4
	2400 2300	29 0-36 0	(14,0-22,0) (28,5-36,5)	0,8 0,8	KF	5.7 - 6.0
	2100		(44,8-49,2)	0,8		1.4 - 1.6
	1500		(43,6-48,0)	0,8	MS	
	800 *		(41,0-47,0)	0,45	svs	5,4
	800 600		(35,3-41,3) (37,5-43,5)	0		-
	800	39,5-41,5	(37,5-43,5)	"		
switch-off					A	
		<u>.</u>			8	
Idle stop	350 400	2,0-8,0	(6,0-14,0) (1,0- 9,0)		Observations  * Manifol	d-pressure
	500	max. 1,5			compensa	ator stroke
End	300	min. 55			= 4,5 m	m
Stop	500	max. 45	-			,
2.4 Salenald	max. cut in voltage last voltage					•

WPP 001/4 VWW 1,6 W 11 1. Edition

stoil-ISO 4113

VE 4/9 F 2250 R 186 O 460 494 162 Overflow temperature 45° C

supersedes VW engine: 086T

All test specifications are valid only for Bosch Fuel injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting - mn

1. Settings	Rot. speed rev/min	Settings	Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1250 1250	2,9 - 3,3 mm 4,0 - 4,6 bar (kgt/cm <sup>2</sup>	0,75 0,75	
1.2 Supply-pump pressure	1500	43,5 - 44,5 cm <sup>3</sup> /1000 str	0.75	max. 2,5
1.3 Full-load delivery with charge-air pressure Full-load delivery without	600	23,0 - 24,0 cm <sup>3</sup> /1000 str	0	
charge-air pressure  1.4 Idle regulation	475	6,0 - 10,0 cm <sup>3</sup> /1000 str	rokes 0	max. 2,0
1.5 Full-speed regulation	2525	9,0 - 15,0 cm <sup>3</sup> /1000 str	okes 0,75	
1.6 Start	100	min. 35,0 cm <sup>3</sup> /1000 att	rokes 0	
1.7 Load-dependent port-closing	1250	, -	0	

2. Test Spec	ifications	checking values in	brackets ( )			
2.1 Timing device LDA=0.75 bar	n = rev/min mm	1250	)		2250 6,1-6,9(5	,8-7,2)
2.2 Supply pump LDA=0,75 bar	n = rev/min bar (kgf/cm²)	600 2,5-3,1			2250 6,5-7,1	
Overflow delivery	n = rev/min cm²/10 s		600 (0 bar) 55-138(40-153)		2250 (0,75 bar) 55-138(40-153)	
2.3 Fuel deliveries					3. Dimer	Sions for assembly
Spead control lever	Rot.speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2750 2525 2250 1500 1000* 600	33,0-34,0	(8,0-16,0) (36,8-41,2) (41,8-46,2) (31,3-35,7) (30,0-36,0) (20,5-26,5)	0,75 0,75 0,75 0,75 0,30 0,75 0	K KF MS SVS	3,2-3,4 5,7-5,9 1,2-1,4 3,7
switch-off					A .	
elektr.	400	0			В	
End stop	475 1250 400 500	max. 4,0 min. 21 max. 29	(4,0-12,0)			ld-pressure sator stroke
2.4 Salenoid	max. cut-in voltage	<u></u>				÷

**BOSCH** 

WPP 001/4 VOL 3,0 r

1. Edition

VE 4//11 F 1300 L 191

Overflow temperature 45° C

supersedes Volvo-Penta **TD 30 WK** 

0 460 414 017

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

**Test Instructions and Test Equipment** 

Pre-stroke setting

0.2

mm = 0,02(0,04)

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1100	1,2-1,6	mm	0,8	
1.2 Supply-pump pressure	1100	5,1-5,7	bar (kgf/cm²)	0,8	
1.3 Full-load delivery with	1100	62,0-63,0	cm³/1000 strokes	0,8	3,5 (4,0)
charge-air pressure Full-load delivery without	600	41,5-42,5	cm³/1000 strokes	0	
charge-air pressure  1.4 Idle regulation	350	13,0-17,0	cm³/1000 strokes	0	3,5 (4,0)
1.5 Full-speed regulation	1350	34,5-40,5	cm³/1000 strokes	0,8	
1.6 Start	100	min. 65	cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	-				

2. Test Spec	ifications	checking values in b	orackets ( )			
2.1 Timing device LDA= 0,8 bar	n = rev/min	900 0,2-0,8	(0-1,2)	1100 (0,7-2,1)		(1,6-3,0)
2.2 Supply pump LDA= 0,8 bar	n = rev/min bar (kgf/cm²)	500 2,8-3	,4		1300 5,8-6,4	
Overflow delivery  DA = 0,8 bar	n = rev/min cm <sup>3</sup> /10 s	500 55-138 (4	40-153)	5	1300 5-138 (40-1	53)
2.3 Fuel deliveries					3. Dimen	sions
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	1460 1350 1250 1100 1100 600* 600	max. 2,0 60,5-63,5 50,5-53,5 45,5-46,5	(33,0-42,0) (59,3-64,7) (59,8-65,2) (49,3-54,7) (42,6-49,4) (38,6-45,4)	0,8 0,8 0 0,3	K KF MS SVS	5,7-5,9 1,2-1,4 4,0
switch-off	•				A B	
End stop	350 380 420 350 450	5,5-11,5 max. 2,5 min. 53 max. 48	(10,5-19,5) (4,0-13,0)			old-pressure nsator stroke
2.4 Solenoid	max. cut-in voltage test voltage			<u> </u>		

**6** 

# **Test Specifications** Distributor-type Fuel-injection Pumps

WPP 001/4 FIA 1,7 h 1

1. Edition

VE 4/10 F 2050 R 192

0 460 404 040

company Fiat engine 8144.91.200

Overflow temperature 45°C

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/.

Pre-stroke setting

0,2

 $\pm 0,02 (0,04)$ 

1. Settings	Rot speed rev/min	The speak		Charge-air press bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1 1 Timing device travel	1500	5,3-5,7	mm	0,8	
1 2 Supply pump pressure	1500	6,1-6,7	bar (kgf/cm²)	0,8	1
1 3 Full-load delivery without	1500	57,5-58,5	cm <sup>1</sup> /1000 strokes	0,8	3,0
charge-air pressure Full-load delivery with	600	42,5-43,5	cm³/1000 strokes	0	
charge-air pressure  1 4 idle speed regulation	400	16,0-20,0	cm <sup>3</sup> /1000 strokes	0	3,0
1 5 Start	2250	34,5-40,5	cm³/1000 strokes	0,8	
1 6 Full-load speed regulation	100	44,0-64,0	cm <sup>3</sup> /1000 strokes	0	! 
1 7 Load-dependent start of delivery	1500	:		0,8	

2. Test Spec	cifications	checking values in t	orackets ( )			
21 Timing device LDA=0,8 bar	n = rev/min	1	00 (0,8-2,2)	1500 (4,8-6,2)	7,6-8,4 (7	2050 (,3-8,7)
22Supply pump LDA=0,8 bar	n = rev/min bar (kgf/cm²)	3,4-	00 4,0	600 4.0-4.6		2050 7,4-8,0
Overflow delivery LDA=0,8 bar	n = rev/min cm³/10 s	600 55-138	) (40-153)	55~	2050 138 (40-153)	
2.3 Fuel deliveries  Speed control lever	Rot speed	Fuel delivery		Charge-air press	3. Dimen Designation	SIONS for assembly and adjustment mm
End stop	2400 2350 2250 2050 1500 800* 600	max. 3,0 1,5.8,5 48,5-51,5 52,5-53,5 58,0-61,0	(1,0-9,0) (33,5-41,5) (47,8-52,2) (55,8-60,2) (50,0-56,0) (56,5-62,2) (40,8-45,2)	0,8 0,8 0,3 0,8	K KF MS SVS	5,8 1,3 2,2
switch-off					B	
End stop	400 500 600 450	1,0-7,0 max. 4,0 max. 47,0	(14,0-22,0) (0-8,0)	.	*LDA-st	roke 4,5 mm
2.4 Solenoid	cut-in voltage		10 V se 12 V.			

**(B)** 

## Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 FIA 1,7 h2

1. Edition

estoil-ISO 4713

VE 6/11 F 1500 R 196

0 460 416 042

Pre-stroke setting

2.1 Timing device

Overflow temperature 45° C

supersedes company:

engine:

1300

Fiat-Iveco 8060.05.200

DHK: 1 688 901 020/172 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

mm

2. Test Specifications checking values in brackets (

n = rev/min

700

Test Instructions and Test Equipment

1500

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1000	3,8- 4,2	mm		
1.2 Supply-pump pressure	1000	5,4- 6,0	bar (kgf/cm²)		
1.3 Full-load delivery with	-		cm³/1000 strokes		
charge-air pressure Full-load delivery without	1000	68,7-69,7	cm³/1000 strokes		3,5
charge-air pressure  1.4 Idle regulation	425	8,0-12,0	cm³/1000 strokes		4,0
1.5 Full-speed regulation	1600	45,0-51,0	cm <sup>3</sup> /1000 strokes		
1.6 Start	100	min. 76,0	cm <sup>3</sup> /1000 strokes		
1.7 Load-dependent port-closing	-				
	1	1		1	1

1000

	mm	1,1-1,9(0,	8-2,2) (3,3-4	,7) 6,3-6,9	(5,9-7,3) 7.	1-7,9(6,8-8,2
2.2 Supply pump	n = rev/min bar (kgf/cm²)	200	70			1500
	oar (kg//cm·)	1,5-2,1	4,2-	4,8		7,2-7,8
Overflow delivery	n = rev/min	600				1500
	cm <sup>3</sup> /10 s	41-83(26-9	B)		55	5-138 (40-153)
2.3 Fuel deliveries					3. Dimen	ISIONS tor assembly and adjustment
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)	Designation	mm
End stop	1730	max. 2,0	/22 F 42 F)		к	3,2-3,4
	1650 1600	34,5-41,5	(33,5-42,5) (43,5-52,5)		KF	5.7-5.9
	1500	64,5-67,5	(63,3-68,7)		MS	1,9-2,1
	1000 600	57,0-60,0	(66,5-71,9) (55,1-61,9)		svs	
switch-off					A	
34.110-1-011					8	
Idle stop	425 500	max. 2,0	(5,5-14,5)		Observations	
End stop	200 300	min. 80 max. 32			Pulling magnet a	electro- 24 V
2.4 Solenoid	max. cut-in volts	ge	<del></del>			
	test voltage				1	

WPP 001/4 VMA 2,0 f

1. Edition

VE 4/9 F 2150 L 202 0 460 494 167

Overflow temperature 45° C

superseden Motori VM company HR 488 HJ

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgt/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1600	4,7-5,1	mm	0,8	
1.2 Supply-pump pressure	1600	4,9-5,5	bar (kgf/cm²)	0,8	
1.3 Full-load delivery with	1500	48,5-49,5	cm <sup>3</sup> /1000 strokes	0,8	2,5
charge air pressure Full-load delivery without	750	36,0-37,0	cm <sup>3</sup> /1000 strokes	0	
charge-air pressure 1.4 Idle regulation	400	11,0-15,0	cm <sup>3</sup> /1000 strokes	0	2,5
1.5 Full-speed regulation	2420	12,0-18,0	cm³/1000 strokes	0,8	
1.6 Start	100	34,0-50,0	cm <sup>3</sup> /1000 strokes	0	
1.7 Load-dependent port-closing	1600	-		0,8	

2. Test Spe	cifications	checking values in brackets (	)	
2.1 Timing device LDA=0,8 bar	n = rev/min mm	1,3-2,1 (1,0-2,4)	1600 (4,2-5,6)	2150 7,6-8,4 (7,3-8,7)
2.2 Supply pump LDA=0,8 bar	n = rev/min bar (kgf/cm²)	600 1,5-2,1	1000 2,8-3,4	2150 6,7-7,3
Overflow delivery	n = rev/min cm <sup>3</sup> /10 s	600 41-83 (26-98)	2150 55-138 (40-153)	
		J		Dimensions

LUA= 0,8 bar	Cm-/IUS	41-03	(20-30)	7-130 (40-1)
2.3 Fuel deliveries				
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	2550 2420 2270 2150 1500 750 750* 750	max. 2,0 30,5-37,5 39,0-42,0 49,0-52,0 45,5-46,5	(11,0-19,0) (30,0-38,0) (36,5-44,5) (45,8-51,2) (47,5-53,5 (43,0-49,0) (33,5-39,5)	0,8 0,8 0,8 0,8 0,8 0,8 0,4
switch-off				
idle stop	400 500 700	2,0-8,0 max. 4,0	(9,0-17,0) (1,0-9,0)	
End stop	400 500	min. 36 max. 37		
2.4 Solenoid	max. cut-in volt	xxx min. xxx rated volta	10. V ige 12V.	

3. Dimen	tor assembly
Designation	and adjustment mm
ĸ	3,2-3,4
KF	5,2-5,4
MS	0,7-0,9
svs	3,2
A	
В	
	ld-pressure sator stroke
	<i>y</i> 4

WPP 001/4 FIA 1.7 h3

1. Edition

VE 4/9 F 2300 R 207

Overflow temperature 45° C

supersedes company:

engine:

Fiat X 8/34

0 460 494 170

Pre-stroke setting

DHK: 1 688 901 022/130 bar

Test pressure line 6x2x450/1 680 750 073

Test Instructions and Test Equipment

see VDT-W-460/...

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

I. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm <sup>3</sup>
1.1 Timing device travel	1500	4,1-4,5	mm		
1.2 Supply-pump pressure	1500	5,3- 5,9	bar (kgf/cm²)		
1.3 Full-load delivery with	-		cm³/1000 strokes		
charge-air pressure Full-load delivery without	1500	29,5-30,5	cm <sup>3</sup> /1000 strokes		2,5
charge-air pressure	380	10,0-14,0	cm³/1000 strokes		2,5
1 5 Full-speed regulation	2450	19,0-25,0	cm³/1000 strokes		
1.6 Start	100	min. 55	cm³/1000 strokes		
1.7 Load-dependent port-closing	1500	-			

2. Test Spe	T	checking values in		4500	2300	·····
2.1 Timing device	n = rev/min	800 1,6-2,4(1,	3-2.7)	1500 (3,6-5,0)	7.0-7.8(6.7-	8.1)
2 2 Supply pump	n = rev/min	600	, J - Z , r ,	(0,0 0,0)	2300	
z z ouppi) pomp	bar (kgf/cm²)	3,1-3,7	,		7,2-7,8	
Overflow delivery	u = ten/wiu	600			2300	
•	cm <sup>3</sup> /10 ś	41-86 (26-9	98)	•	55-138(40-15	3)
2.3 Fuel deliveries	_L				3. Dimen	for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm <sup>3</sup> /1000 strokes		Charge-air press bar (kgf/cm²)	Designation	and adjustment mm
End stop  switch-off	2900 2650 2450 2300 1500 1000 600	max. 1,5 2,0-9,0 31,8-34,2 28,8-31,2 30,0-33,0	(27,8-32,3) (27,8-32,2)		KF MS SVS	3,2-3,4 5,7-5,9 1,7-1,9 2,8
die stop	380 400 500 300	5,0-11,0 max. 1,5 min. 48	(8,0-16,0 (4,0-12,0		Observations	. <b>I</b>
Stop 2.4 Solenold	400 max. cut-in voltage test voltage XXXXXXX	max. 45				

# Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 MB 5,7 o

8. Edition

PES 6 A 90 D 410 RS 2293 Z RSV 575-1250 A 1 B 618 L A 1 C 618 L supersedes 4.83

Komb.-Nr. 0 400 876 195

company Daimler-Benz engine OM 352 A 107 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25 (2,10-2,30)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm /100 strokes 3	Difference cm <sup>-/</sup> 100 strokes 4	Control rod travel mm 2	Fuel delivery cm//100 strakes 3	Spring pre-tensioning (torque control valve) mm
1230	11,2+0,1	7.5 - 7.6	0,3 (0,45			
575	6,1-6,3	1,0 - 1,6	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

	r rated speed Control rod travel mm	Control rod travel mm rev/min	Intermed	diate rated		Control- lever dettection in degrees		rated speed Control rod travel mm	rev/min	rque control  Control rod  travel  mm
1	2	3	4	5	6	/	8	9	10	11
lose	800	0,3-1,0	-	-	-	ca. 33	ł	6.2	-	-
	×	= 5,0					575	6,1-6,3		
ca.65	10,2 4,0 1350	1260-1270 1295-1315 0,3-1,7					600-6	0 = 2,0 **		

The numbers denote the sequence of the tests tidle-speed auxiliary spring at 2 mm control-rod travel.

#### C. Settings for Fuel Injection Pump with Fitted Governor

	ull-foad stop emp 40°C (104°F)	6 Rotational- speed limitat		rel delivery paracteristics	Starting (	luel delivery 5	<b>4a</b> Idi	e stop
	cm <sup>1</sup> /1000 strokes	changed to ) rev/min 3	rev/min 4	cm <sup>1</sup> /1000 strokes 5	rev/min 6	cm <sup>1</sup> /1000 strokes	rev/min 8	travet mm 9
1230	74,5 - 75,5 (72,5 - 77,5)	1260-1270 *	-	-	100	78,0-88,0 (75,0-91,0		-

Checking values in brackets

\* 1 mm less centrol rod travel than cot 2

2.85

### **Test Specifications** Fuel Injection Pumps (1A) and Governors

WPP 001/4 FIA 2,6 d 1. Edition

Εn

BR-PES 3 A 90 D 410 RS 2317 BR-EP/RSV 325-1200 A 1 B 1015 L Fiat 31/1005

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

# A. Fuel Injection Pump Settings 2, 15-2, 25 Port closing at prestroke (2, 10-2, 30) mm

Testoil-ISO 4113

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm1/100 strokes 3	Difference cm <sup>3</sup> : 100 strokes 4	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Spring pre-tensioning (forque-control valve) mm
1000	9,0	5,9 - 6,4	0,4			
1000	6,0	2,7 - 3,5				
1000	15,0	13,3 -14,3	Ì			
200	9,0	2,8 - 4,0				

Adjust the fuel delivery from each outlet according to the values in [

#### **B.** Governor Settings

1	r raied speed Control rod travel mm		Intermediate rated speed			Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 to	rque control Control rod travel mm
ca.64	1200 1250 1290	16,0 10,2 6.0	witho	ut aux	kiliar	ca.23 y spring	325 100 325	6,5 19 - 21 6,3 - 6,7	1180 500 400	0 0 1,2 - 1,8
29	1270 1300 1350	7,0-9,6 3,6-6,2 1,0-3,6	with	auxili	iary s	pring	400 450 550	2,6 - 4,4 1,0 - 3,4 0 - 1,0		

#### C. Settings for Fuel Injection Pump with Fitted Governor

<b>U</b>	il-load stop	6 Rotational- speed limital		rel delivery paracteristics	Starting f	e stop			
Test oil te rev/min 1	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to) rev/min 3	rev/min	cm³/1000 strokes 🐧	rev/min	cm³/1000 strokes 7		Control rod travel mm	
1180	74,0 - 76,0 (72,0 - 78,0)	. 1210-1230*	•	-	100	min. 130	-	-	

Checking values in brackets

\* 1 mm less control rod travel than col 2

3.85

nst. Kfz-Ausrüstung ostfach 50. D-7000 Stuttgart 1 Printed in the Federal Republic of Germany d'Allemagne par Robert Bosch GmbH

#### Test Specifications Fuel Injection Pumps (1)PP 001/4 STE 6,0 h 3

and Governors

2. Edition

PE6A85D412RS23@3

Komb.-Nr. 0 400 050 154

RQV250-1400AB 1091L

supersed@.80 companySTEYR engine: WD 612-60

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Manches and Testers

# A. Fuel Injection 2,50-2,80 mm Port closing at prestroke (2,45-2,65) mm

Post crossing de prot		(2,45-8,05)	mm (nom obo)								
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strakes 3	Spring pre-tensioning (torque-control valve) mm					
1400	11,3-11	4 7,6 - 7,7	0,3(0,45)								
250	8,4-8,6	0,9 - 1,5	0,2(0,4)								
						<u> </u>					

Adjust the fuel delivery from each outlet according to the values in [

#### **B.** Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leeve travel
deflection	rev/min Control	trevel		Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		①
of control	rod travel	mm rev/min (		of control lever	rev/min	mm (4)	of control	rev/min	mm ③	rev/min	mm
1	2	3		4	5	6	7	B	9	10	11
max.	1400	15,2-17,	8	•	•	-	ca.11	100 250	min.7,6 5,9-6,1	250 490	0,8 2,5-2,7
ca. 45	10,3	1440-145	0					350-4	410 =2,0	1450	8,3
	4,0 1700	1540-157 0 - 1					38)	500	max. 1,0		

Torque control travels = 0,6 mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed 2t fimitation intermediate speed	Fuel deli- high idle s	rery characteristics 58 peed 50	Starting idle awitchir	0	Torque-control 5 travel Control rod		
rev/min 1	cm³/1000 strokes .	rev/min 49	rev/min	cm <sup>3</sup> /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min	travel mm 9-0.1	
LDA	0,7 bar		LDA	0,7 bar	100	142,0-152,0	400	11,3	
1400	76,5 - 77,5 (74,5 - 79,5)	1440-1450*	800	70,0 - 73,0 (68,0 - 75,0) 0 bar		(139,0-155,0	950 850	11,4 11,7	
			500	55, 5 - 58, 5 (53, 5 - 60, 5)			500	11,9	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

#### D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

	xxxxxxx			· · · · · · · · · · · · · · · · · · ·
Pump/governor	Setting	Measurement	Control rod travel	diminution difference
	Gauge pressure =	bar - Gauge pressure -	bar mm (1)	
2303 + 109	1L 0,7		12,0 -	12,1
		0,18	11,7 -	11,8
		0,16	11,5 -	11,7
		0	11,3 -	11,4
	į.	1	ı	

Notes:

(1) when n =

rev/min and gauge pressure =

bar ( = maximum full-load control rod travel)

Full-Load setting on governor; turn LDA adjusting screw 0.3...0.5 mm toward "increased" control-rod travel.

### **Test Specifications** Fuel Injection Pumps (2) WPP 001/4 STE 6,0 h 2 and Governors

2. Edition

Testoil-ISO

PE 6 A 85 D 412 RS 2303 Komb.-Nr. 0 400 656 157 RQ 250/1400 AB 1099 L

supersedes1.79

company: Steyr

engine: WD 612.60

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

# A. Fuel injection Pump Settings 2,50-2,60 Port closing at prestroke (2,45-2,65)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,7+0,1	7,8 - 7,9	0,3(0,45			
250		0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Checkin PRG che rev/min 1	Control rod	Full-load s Setting po rev/min 3	•	-	cifications (4)	Idle spec Setting p rev/min 7	Control red travel	Test spe	cifications 5 Control rod travel mm	Torque d rev/min 11	Control rod (3)
650	15,5-16,4	650	16,0		1445-1460 1530-1560 O - 1,0	250	5,5	250	mind.7,0 5,4-5,6 20=2,0 max.1,0	975 820 600	11,7-11,8 11,7-12,0 12,2-12,4 12,4-12,5

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever np. 40°C (104°F)	Control rod stop	(3a)	Fuel delive	ery characteristics 3b	Starting f	uel delivery
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3		rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes:/ mm 7
LDA 1400	0,7 bar 78,0 - 79,0 (76,0 - 81,0)			LDA 1000 LDA 500	0,7 bar 72,5 - 75,5 (70,5 - 77,5) 0 bar 60,0 - 63,0 (58,0 - 65,0)	100	142,0 - 152,0 (139,0-155,0)

Checking values in brackets

#### D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

				XXXXXXX			
Pump/governo	r			Setting		Measurement	diminution Control rod travel- difference
			<del></del>	Gauge pressure =	bar	Gauge pressure = ba	ur mm (1) ,
2303 4		1099	L	0,70			12,4 - 12,5
						0,23	12,2 - 12,3
			*			′ 0,20	12,0 - 12,2
				÷.		0	11,8 - 11,9

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

### **Test Specifications** Fuel Injection Pumps (A) and Governors

WPP 001/4 VIIA 5.7 a

Edition

Testoil-ISO 4113

PES 6 A 85 D 320/3 RS 2339 Komb.-Nr. 0 400 866 029

RSV 350-1250 A 1 B 279 R

A 1 C 279 R

supersedes.

company Motori VM

106 SU, 956 SU

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(2,95-3,15)

3,00-3,10 RW9

mm (from BDG B.Diff. zw RW 9 mm RW max. =  $6.0-7.0^{\circ}$ 

Rotational speed rev/min	Control rod travel	Fuel delivery cm1100 strokes	Oifference cm <sup>-//</sup> 100 strokes	Control rad travel	Fuel delivery	Spring pre-tensioning (forque-control valve)
1	2	3	4	2	3	6
750	9,7-9,8	5,3 - 5,4	0,3(0,45)	y —		
350	7,3-7,5	1,0 - 1,6	0,2(0,4)			
				i i		

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min 3	Interme	diate rate	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	(3) to	rque control Control rod travel mm
loose	800 x =	0,3-1,0 2,75	-	-	-	ca.16	350 100	5,5 min.19	1250 400 500	9,7-9,8 10,8-11,4 9,7-9,9
ca.58		300=8,7 330=4,0 ,3-1,7					350 500 405-465	5,9-6,1 max.1,0 = 2,0		<b>741</b> -747

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	ell-load stop	Rotational- speed limitat		iel delivery aracteristics	Starting l	luel delivery 5	4a Idle stop	
1	emp 40°C (104°F) cm V1000 strokes 2	Note changed to ) rev/min	rev/min	cm / 1000 strokes	rev/min	cm <sup>1</sup> /1000 strokes		Control rod travel mm
750	53, 5 - 54, 5 (51, 5 - 56, 5)	1290-1300*	•	-	100	110,0-130, = 19,0 - 21,0 mm F	500	9,7-9,8 9,7-9,9 10,8-11,4

Checking values in brackets

\* 1 mm less control rod travel than col 2

Testoil-ISO 4113

### **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 OMB 7,4 a 1

1. Edition

PES 6 A 90 D 410 RS 2340

ROV 275-1200 AB 972 L (1) 250-1300 AB 961 DL (2) supersedes

companyOM Brescia engine: CP3/100-136PS CP3/130

All test specifications are valid for Bosch Fuel Injection Fump Test Benches and Testers

#### A. Fuel Injection Pump Sectings

Port closing at pres		10-2.30)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery (1)	Difference	Control rod travel	Fuel delivery (2)	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm <sup>3</sup> /100 strokes	cm³/ 100 strokes 4	mm 2	cm <sup>3</sup> /100 strokes 3	mm min. 1
1200	10,9+0,	7,6 - 7,7	0,3(0,45)	10,3-10,4	7,4 - 7,6	-n 1300
275	8,0-8,2	0,7 - 1,1	0,2(0,4)	7,8-8,0	0,9 - 1,5	-n 250

Adjust the fuel delivery from each outlet according to the values in [

**B.** Governor Settings

B. Gov	emor	Settin	gs				2	75-12	00 AB 97	2T	
Upper rated	speed		,,,	Intermediate	rated sp	eed	Lower rated	speed		Sliding s	leeve travel
Dagree of deflection of control lever	Control rod travel	Control rod travel mm rev/min 3	② ②	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3 9		mm 11
max.	1250	15,0-18	,0		-	-	ca.16	275	min.9,7 8,0-8,2 500=2,0		0,8-1,8 3,8-4,2 8,2
ca.64	9,9 4,0 1450	•					39	300-6	·	1200	0,2

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten	stop	limitation intermediate speed	high idle s	rery characteristics (5e)	Starting Idle switchir		Torque- travel	Control cod
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	ww
1	2	3	4	5	6	7 mm RW	8	8
1200	75,5 - 76,5 (73,5 - 78,5)	1240-1250*	-	-	100	14,7-15,3	-	-
					100-	-195 (80-215)		

Checking values in brackets

1 mm less control rod travel than col. 2

Upper rated	speed		Intermediat	e rated spo	eed	Lower rated	speed		Slidings	Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rodtravel mm	Control rod (1) travel mm rev/min (2)	Degree of deflection of control tever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel		0	
1	2	3	4	5	6	7	8	9	10	11	
max.	1340	15,2-17,8	-	-	-	ca.21	250	  min.11,5  9,9-10,1  850=2,0	200 600 1350	0,4-1,5 3,5-4,0 8,2	
ca.61	9,3 4,0 1550					39 4	1050 250-0	0 - 1	1350	0,2	

Torque control travel a 0,2

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

stop	Irmitation	on high lide speed (sh)		Idle	Torque- travel	Control rod	
cm*/1000 strokes	rev/min 4a	rev/min	cm.1/1000 strokes	ten/win	cm=/1000 strokes	rev/min	travel mm
2	3	4	5	6	7	8	9
74,5 - 75,5 (72,5 - 77,5)	1350-1350*	1100	, ,		109, 25 - 119, 25		10,8-10,4
		500		Į.	170 (80-190)		10,5- 10,6
5	stop p 40°C (104°F) 2 cm'/1000 strokes 2 74,5 - 75,5	cm'/1000 strokes rev/min 3	stop   Imitation   Imitation	timitation   tim	Imitation   Imit	Imitation   Imitation   Initiation   Initi	travel   t

Checking values in brackets

\* 1 mm less control rod travel than col. 2

# Testoil-ISO 4113

#### **B. Governor Settings**

Upper rated	speed			Intermediate	rated spe	ed	Lower rated	speed			Sliding sl	Sliding sleeve travel	
Degree of deflection		Control rod travel	<b>(1a)</b>	Degree of deflection		Control rod travel	Degree of deflection	ì	Control roo		J. J.	1	
of control lever	rod travel	mm rev/min	<b>2a</b>	of control tever	rev/min	mm (4)	of control lever	rev/min	mm (	3	rev/min	mm	
1	2	3		4	5	6	7	8	9		10	11	
				-			39						

Torque control travel a =

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed (2b) Imitation intermediate speed	Fuel deliv	rery characteristics 5a peed 5b	Starting Idle switching		Torque-control 5 travel  Control rod		
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min		rev/min	travel mm	
1	2	3	4	5	6	7	8	9	
								•	

Testoil-ISO 4113

### Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 4.1 b

2. Edition

En\_

PES 4 A 80 D 410 RS2346

EP/RS 325-1400 AO B699DL

AO C 699 DL

supersedfs 76 companyK H D engine F 4 L 913

Komb.-Nr. 0 400 864 034

Test RS governor according to WPP 001/4, KHD 1 c

engine F4 L 91 (87 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

1.9 + 0.1

mm (from BDC)

<u> </u>

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	er rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	tev/min	Control rad travel		ontrol travel	
1	2	3	4	5	6	7	8	9	10	11	
		15,8-16,5 11,9-13,3 7,7-9,8 2,8-5,8 0,3-1,0	-	-	-		325 300 400 500 1400 1470	8,3 8,4-9,1 6,0-6,8 3,5-4,2 2,2-2,8	1050 900	0 0,4-0,6 0,9-1,1 1,2-1,4 1,2-1,4	

Torque control travel a :

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-rol Test oil ten rev/min 1		Rotational-speed limitation rev/min 3	Fuel deln rev/min 4	rery characteristics cm <sup>3</sup> /1000 strokes 5	Starting Idle switchin rev/min 6		Intermediate rotational speed Torque-control travel rev/min mm	
1400	69,0 - 70,0 (67,5-71,5)	1420	800	62,0 - 65,0 (60,5-66,5)	-	-	•	•

Checking values in brackets

\* 1 mm less control rod travel than col. 2

Testoll-ISO 4113

# Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 6.1 a 1
4. Edition

En

PES 6 A 85 D 410/3 RS 2415

RS 325/1325 AOB 691 DL,709DL supersedes .83 AOC 691 DL,709DL company KHD

engine BF6 L 91

Test RS governor according to WPP 001/4, KHD 1 c

110 kW (150 PS) 2650 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke (1.85-2

mm (from BDC)

Detetional		,83-2,05)	low.		1	
Rotational speed	Control rod travel	Fuel delivery	Difference cm <sup>3</sup> /	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3	.4	2	3	6
1325	12,0+0,1	8,7 - 8,8	0,3(0,45)			
325	8,2-8,4	1,4 - 2,0	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	ed	3 Torque control		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel	
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3-0,7	-	-	-		325	6,5	1325 500	2,0+0,1 2,5+0,2	
	X =	7,0						min.16,0 6,4-6,6		2,1+0,2	
ca.68	11,0 4,0	1355-1365 1450-1480	I				500	3,4-4,0 370=2.0			
Ŭ	1600	0,3-1,4									

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	<u> </u>		6 Rotational- speed limitat. 3a Fuel delivery characteristics			fuel delivery	Sa) idle stop		
Test oil tem; rev/min 1		Note: changed to rev/min 3	rev/min	cm <sup>3</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes	rev/min 8	Control rod travel mm	
LDA 1325	0,7 bar 86,5-87,5 (84,5-89,5)	1355-1365*	LDA 500 LDA 850	0 bar 56,0-58,0 (53,5-60,5) 0,7 bar 76,5-78,5 (74,0-81,0)	100	15,0-16,0 mm RW	•	-	

Checking values in brackets

\* 1 mm less control rod travel than col. 2

4.85

#### D. Adjustment Test for Manifold Pressure Compensator

KHD 6.1 a 1 - 2 -

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = ba	r Gauge pressure = bar	mm (1)
PES 6 ARS 2415	0,27		11,6 - 11,8
+AOB 691 DL +AOB 709 DL	}	0,70	12,5 - 12,7
		0,37	12, 2 - 12,3
		0	11, 3 - 11,5

Notes.

(1) when n =

rov/min and gauge pressure =

bar ( = maximum full-load control rod travel)

Testoil-ISO 4113

### **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 6.1 a 2 3. Edition

PES 6 A 85 D 410/3 RS 2415

ROV 750 A B 1004 L

Komb.-Nr. 0 400 836 016

supersede 9.82 6 L 913 1 kW / 1500 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A power output -10% above rated output

A. Fuel Injection Pump Settings

1,90-2,00

mm (tram BDC) RW=9.0 - 12.0 mm

LOUI CHOSHING OF DIAS		.85-2.05)	Tilli (IIOIII BOC)	, -	12,0 11411	
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>2</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
720	12,3 <sup>+0</sup> ,1	8,4 - 8,5	0,3(0,45)			
,						
:	·					
				1		

Adjust the fuel delivery from each outlet according to the values in [

#### **B. Governor Settings**

Upper rated a	peed			Intermediate	rated ap	eed		Lower rated	speed			Sliding s	leeve travel
		Control rod travel	<b>②</b>	Degree of deflection		Control rod travel		Degree of deflection		Control travel	rod		1
	rod travel mm	mm rev/min	20	of control	rev/min	mm (	<b>①</b>	of control lever	rev/min	mm	3	rev/min	mm
1	2	3		4	5	6	_	7	8	9		10	11
ca.25	11,3 4,0 820	760-765 789-799 0-1,0		•	-	•		•	•	•	•	•	•
								<b>3</b>					

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2			Fuel deliv	rery characteristics (5a)	idle	fuel delivery 6	Torque- travel	control (5)
rev/min	cm³/1000 strokes	rev/min 4	rev/min	cm <sup>3</sup> /1000 strokes		cm³/1000 strokes	rev/min	
	2	3	4	5	6	7	8	9
720	84,0-85,0 (82,0-87,0)	760-765*	•	-	-	-	•	-

Checking values in brackets

\* 1 mm less control rod travel than col. 2

4.85

### **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 15.8 c 2

1. Edition

PE 10 A 95 D 610/4 LS 2452

ROV 300-1150 AB 988 DL

supersedes companKHD

Komb.-Nr. 0 400 649 188

1-10- 9- 4- 3 - 6 - 5 - 8 - 7 - 2 0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

engine: F 10 L 413 F 216 kW/2300 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

rev/min	mm 2	cm <sup>3</sup> /100 strokes 3	cm <sup>3</sup> / 100 strokes 4	mm 2	cm³/100 strokes	(torque-control valve) mm 6
1150	9,2-9,3	8,5-8,7	0,3 (0,6)			
300	5,9-6,1	0,9-1,4	0,3 (0,5)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated s	peed		Intermediat	e rated ap	eed	Lower rated	speed		Sliding sleeve travel		
deflection of control	rodtravel	travel C	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever 7	revimin	Control rod travel		mm 11	
max. ca. 65	8,2 4,0 1350	15,2-17, 1190-120 1225-125 0-1,0	ō	•	-	ca. 12 300-450 30	300 550-	min. 7,5 5,9-6,1 610 = 2,0 max. 1,0	250 550 850 1150	0,5-0,7 2,9-3,1 4,8-5,0 7,9	

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-rol Test oil ten	d stop np. 40°C (104°F) 2	Rotational-speed (2b) limits/don intermediate speed	high idle s	prery characteristics (5a)	idle switchi	. •	Torque- travel	Control (8) Control rod travel
1	2	3	4	5	6	7	8	•
1150	84,5-86,5 (82,5-88,5)	1190-1200*	700 400	83,0-86,0 (80,5-88,5) 75,0-79,0 (72,5-81,5)	100	13,2-14,2 mm RW	1000	),2-9,3 ),4-9,6 ),7-9,8

Checking values in brackets

1 mm isse control rod travel then col. 2

3.85

BOSCH

## **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 9,2 e 3 2. Edition

PES 5 A 95 D 410 LS 2488 v

ROV 250-1100 AB 850 DL

supersed 84 companyMAN

Komb.-Nr. 0 400 845 041

D 2565 MEFV

Saviem

1-3-5-4-2 je 72° ±0.5° (±0.75°)

137 km/2200 min<sup>-1</sup> MAN-Nr. 1-7041

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

lotational speed	Control rod travel	Fuel delivery	Difference cm <sup>3</sup> /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
ev/min	mm 2	cm <sup>3</sup> /100 strokes 3	100 strokes 4	mm 2	cm³/100 strokes 3	mm 6
1100	11,0+0,	11,8-12,0	0,3(0,6)			
250	5,7-5,	1,4-1,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [

#### **B.** Governor Settings

Upper rated s	peed	1	Intermediate	rated sp	eed	Lower rated	speed		Cliding	Sliding sleeve travel	
deflection		trevel 🔾	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	rod		
lever		rev/min (2s)	lever	rev/min	mm 4	lever	rev/min	mm ③		mm	
<u> </u>	-	3	•	P	0	/	5	9	10	11	
max.	1140	14,4-17,6	-	-	-	ca.13	100	min.7,4	200	0,7-0,9	
ca.42	10,0	1140-1150						5,7-5,9 75=2,0	500 800	3,5-3,8 5,0-5,4	
	4,0 1350	1175-1205 0 - 1,0					450 m	ax. 1,0	1100	7,7	
						<b>③</b>					

Torque control travel a = 0.4

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 20 limitation intermediate speed	Fuel deli- high idle i	very characteristics (3e)	Starting Idle switching		Torque- travel	Control rod	
rev/min 1	crh³/1000 strokes . 2	rev/min 49 3	rev/min 4	cm <sup>3</sup> /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm	
1100	117,5-119,5 (115,5-121,5	1140-1150* )	750 500	114,5-118,5 (112,5-120,5) 111,5-115,5 (109,5-117,5)		13,7-14,3 mm RW 6,0 mm RW		11,0+0 11,3+0,3 11,4+0,	

Chucking values in brackets

\* 1 mm less control rod travel than col. 2

## ② Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MAN 9,2 d 1

3. Edition

Testoil-ISO 4113

PES 5 A 95 D 410 LS2488Z

RQ 250/1100 AB839DL

supersedes 84 company M A N

Komb.-Nr. 0 400 845 033

1 - 3 - 5 - 4 - 2 je  $72^{\circ \pm 0}, 5^{\circ}$  ( $\pm 0, 75^{\circ}$ )

engine D 2565 MSFV 137 kW /2200 min<sup>-1</sup> MAN-Mr. 1-7838

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

(1.45-1.65)

mm (from BDC)

	7-3	10 - 100/				
Rotational speed	Control rud travel	Fuel delivery  cm <sup>1</sup> /100 strokes	Difference cm <sup>1</sup> / 100 strokes	Control rod travel	Fuel delivery  cm 1/100 strokes	Spring pre-tensioning (torque-control valve) mm
1100	11,0+0,1	11,7 - 11,9	0,3 (0,6)	-	3	6
				1		1
250	5 <b>,3-</b> 5 <b>,</b> 5	1,2 - 1,7	0,3(0,5)			
l		I		J	.1	1

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Checkin	g of slider	Full load	speed re	gulation		idle spe	ed regula	stion		Torque o	control
		Setting p	oint	Test spec	cifications	Setting	trioc	Test spe	cifications		<b>;</b> ·
	Control rod travel mm 2	rev/min	Control red travel rnm	rev/min 5	Control rod travel mm 6	rev/min 7	Control red travel rmm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	10,0	1145-1160	250	5,4	100	mind.6,9	1100	11,0-11,1
			<del> </del>	4,0	1175-1205		ĺ	250	5,3-5,5	800	11,3-11,5
						<u> </u>		320-	360 = 2,0	500	11,5-11,6
•	ontrol travel oht assembly dimer		0,2	mm	Ens	ed regula	ton At	1145	-1160 mir	1=1	1 mm less confi rod trav

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rad stop	Fuel deln	rery characteristics	Starting fuel delivery		
rev/min 1	cm³/-1000 strokes	rev/min 3	rev/min 4	cm 1/- 1000 strokes 5	rev/min	cm <sup>1</sup> /100 strokes 7	
1100	116,5 - 118,5 (114,5 - 120,5)		800	114,5 - 118,5 (112,5 - 120,5)	100	120,0-130,0 (117,0-133,0)	
			500	111,5 - 115,5 (109,5 - 117,5)	250	= 13,5-14,5 mm RW 6,0 mm RW	
				(109,5 - 117,5)	250	6,0 m	

Checking values in brackets

4.85

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrustung.

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## Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 9,2 e 2 2. Edition

E

PES 5 A 95 D 410 LS 2488 Z Komb.-Nr. O 400 845 034 1-3-5-4-2 je 72° ±0,5° (±75°)

RQV 250-1100 AB 850 DL

companMAN
engine: D 2565 M/MF
124 kW/2200 min<sup>-1</sup>
MAN-Nr. 1-7803

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

#### A. Fuel injection Pump Settings

Port closing at pret		1,5-1,6	mm (from BDC)			
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery  cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod trevel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,9+0,1	9,5-9,7	0,3(0,6)			
250	5,7-5,9	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated	speed			intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travet mm rev/min 3	(1) (2)	Degree of deflection of control lever	rev/min	Control travel	rod ①	Degree of deflection of control lever	rev/min	Control of travel	od 3		mm
ca.50	1140 1200 1220 1300	14,4-17, 4,0-10, 0 - 8,0 0 - 1,0	6	•	•	_			100	7,5-1 5,7-8 2,5-5 0	,5	200 500	0,7-0,9 3,5-3,8 5,0-5,4 7,7

Torque control travel a = 0.5 mm

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter	d stop mp. 40°C (104°F) 2	Rotational-speed (2b) limitation intermediate speed rev/min (4a)	nigh idio d	rery characteristics 5a poed (5b) cm³/1000 strokes	idle switchli	•	travel	Control of travel
1	2	3	4	5	6		rev/min 8	9
1100	94,5-96,5 (92,5-98,5)	1140-1150*	800 500	98,5-102,5 (96,5-104,5) 95,0-98,0 (93,0-100,0)	100 250	15,5-16,5 mm RW 6,0 mm RW	1140 550	0 0,4-0,6

Chucking values in brackets

\* 1 mm less control rod travel than col. 2

4.85

BOSCH

## **Test Specifications Fuel Injection Pumps** and Governors

WPP 001/4 MAN 9,2 f Edition

RQ 250/1100 AB 917 DR(1) supersede 5.84 PES 5 A 95 D 320 LS 2504 RQ 250/1100 AB 968 DR(2) company M A N

Komb.-Nr. 0 400 845 031 (1) MAN-Nr. 1-7756

D 2565 MUL

141 kW/2200 min (1) 0 400 845 032 (2) MAN-Nr. 1-7757  $1 - 3 - 5 - 4 - 2 = 0 - 72 - 144 - 216 - 288^{\circ} \div 0.5^{\circ} (\div 0.75^{\circ})$  124 kW/2200 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

mm (from BDC) Port closing at prestroke

		43-1,03/				
Rotational speed rev/min	Control rod travel mm	Fuel delivery cm <sup>1</sup> /100 strokes 3	Difference cm <sup>1</sup> / 100 strokes 4	Control rod travel mm	Fuel delivery cm <sup>1</sup> /100 strokes 3	Spring pre-tensioning (forque-control valve) mm 6
1100	11,3+0,1	11.4 - 11.6	0,3(0,6)	10,1+0,1	9,6 - 9,8	
250	6,4-6,6	1,5 - 2,1	0,4(0,5)	5,9-6,1	0,8 - 1,4	

Adjust the fuel delivery from each outlet-according to the values in

#### **B.** Governor Settings

917DR (1)

Checkin	g of slider	Full-load s	peed re	gulation		Idle spec	ed regula	tion		Torque c	ontrat
rev/min	Control rod travel mm 2		Control red travel		cifications Control rod travel mm	Setting processing to the setting processing the setting processing the setting processing the setting processing process	Control red travel	Test spe rev/min 9	cifications Control rod travel mm 10	rev/min	Control rod travel mm 12
600	15,6-16,4	600	16,0		1145-1160 1175-1205 0 - 1,0		5,7	250	mind. 7,2 5,6-5,8 400=2,0 max.1,0	1100 800 500	11,3-11,4 11,5-11,7 11,7-11,8

Torque-control travel on flyweight assembly dimension a = 0,2

Speed regulation A145 - 1160 min -1

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel deliv	ery characteristics	Starting fuel delivery		
rev/min 1	cm³/-1000 strokes	rev/min 3	rev/min	cm³/-1000 strokes 5	rev/min	cm³/100 strokes 7 mm RW	
1100	114,0 - 116,0 (112,0 - 118,0)		800 ·	111,0 - 115,0 (109,0 - 117,0) 108,5 - 112,5	100	13,7-14,3	
			300	(106,5 - 114,5	250	6,5	

Checking values in brackets

3.85

Checkin PRG che	g of slider eck	Full foad Setting p	•	-	cifications (4)	ldle spec	_		cilications (5)	Torque d	control 3
rev/min	Control rnd travel mm	rev/min	Control red travel rnm 4	Control red travel rmm	rev/min	rev/min 7	Control rad travel errors	rev/min 9	Control rod travel mm	rey/min	travel
600	15,6-16,4	600	16,0		1145-1160 1185-1215 0 - 1,0		6,0	100 250 350- 450		1000	10,1-10,2 10,3-10,6 10,8-10,9

Torque-control travel on flyweight assembly dimension a =

0,4

Speed regulation At 1145 - 1160

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever mp. 40°C (104°F)	Control rod stop  3a	Fuel deliv	ery characteristics	Starting li	fuel delivery ed Comm
rev/min t	cm <sup>3</sup> /~1000 strokes 2	rev/min 3	revimin 4	cm <sup>1</sup> /-1000 strokes 5	rev/min 6	red travel 7 mm RW
1100	96,0 - 98,0 (94,0 ~ 100,0)		800	101,5 - 105,5 99,5 - 107,5)	100	13,7-14,3
			500	94,5 - 98,5 ( 92,5 - 100,5)	250	6,0
				( 92,3 - 100,3)		

Checking values in brackets

## Testoil-ISO 4113

#### **B.** Governor Settings

Checking PRG chec	of slider	Full-load s Setting po	•	•	cifications (4)	idle spec			cilications (5)	Torque d	(3
	Control rod travel mrn	rev/min	Control red travel rmm	Control red travel rnm	rev/min	rev/min	Control rod travel reserve	rev/min	Control rod travel mm	rev/min	Control rod travel
1	2	3	4	5	6	7	6	9	10	11	12
							ļ				

Torque-control travel on flyweight assembly dimension a =

\_\_

Speed regulation: At

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

governor	felivery on control lever mp 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics	36)	Starting for the speed	Contre
rey/min. 1	cm <sup>1</sup> /- 1000 strokes 2	rev/min 3	rev/min	cm³/-1000 strokes 5		rev/min	red tri cm <sup>3</sup> /1000 strokes / mm 7

WPP 001/4 MAN 12,8 e 4. Edition

PE 8 A 90 D 320 LS 2514

RQ 250/1250 AB992DR 250/1250 AB832DR

superseda. 82 companyM A N D 2538 M/MF 190 kW (256 PS)

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je  $45^{\circ} + 0.5^{\circ} (\pm 0.75^{\circ})$ 

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel injection Pump Settings 1,50-1,60 (1.45-1.65) m

mm (from BDC)Zv1. 8

		1,40-1,00/		Lyi. U		
Rotational speed rev/min	Control rod travel mon 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,5+0,1	10,2 - 10,3	0,3(0,45)			
250	7,4-7,6	0,9 - 1,5	0,2(0,4)			·

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

.. 992DR

1 .		Full-load a		_		idle spec	-			Torque control		
PRG che rev/min 1	Control rod	setting po rev/min 3	int Central red travel mm 4	Fest spec Centrel red travel mm 5	rev/min 6	Setting property of the settin	Control red travel		cifications 5 Control rod travel mm	rev/min	Control rod travel mm	
600	15,6-16,4	600	16,0		1295-1310 1400-1430		6,0	250	5,9-6,1	1250 970	11,5-11,6 11,6-11,9	
				1500	0 - 1,0				400= 2,0 max. 1,0	870 500	11,9-12,1 12,1-12,2	
Torque-c	control travel		0,25				12	95-13	O min 1		1 mm less control	

on flyweight assembly dimension a =

Speed regulation: At

rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever 2	Control rod stop  (3a)	Fuel deliv	ery characteristics 3b	Starting fuel delivery Idle speed		
rev <i>ir</i> nin 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	red travel cm <sup>3</sup> /1000 strokes;/ mm 7	
1250	102,5 - 103,5 (100,5 - 105,5)	•	800 500	95,5 - 98,5 (93,5 - 100,5) 90,0 - 94,0 (88,0 - 96,0)	100 250	135 - 145 7,5 mm RW	

Checking values in brackets

			0025.								
Checkin PRG cho	g of slider	Full-load : Setting po	•	•	cifications (4)	Idle spe	•		Torque control		
	Control rod travel	rev/min	Control red travel rnm	Control red travel mm 5	rev/min	rev/min 7	Control   rad travel	rev/min	Control rod  travel mm  10	rev/min	Control rod (3) travel mm 12
600	15,6-16,4	600	16,0	10,5	1295-1310	250	6,1	100	min. 7,6	-	•
1250 1500				4,0	1345-1375			250 360- 500	6,0-6,2 20= 2,0 0 - 1		

Torque control travel on flyweight assembly dimension a =

Speed regulation At

1 mm less control rod travel

## C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever pp 40°C (104°F)	Control rod stop 3a	Fuel déliv	ery characteristics	Starting Idle spec	fuel delivery ed Control
rev/min 1	cm³/- 1000 strokes 2	rev/min 3	rev/min 4	cm 1/- 1000 strokes	rev/min	cm <sup>1</sup> /1000 strokes / mm
1250	101,5 - 102,5 ( 99,5 - 104,5)		500	78,0 - 86,0 (76,0 - 88,0)	100 250	18,0 - 18,6 7,0
						•

Checking values in brackets

Testoil-ISO 4113

#### **B.** Governor Settings

Checking PRG che	g of slider ck		Full-load : Setting po			cifications 4	idle spe	•		cifications (5)	Torque o	control
rev/min 1	Control rod travei mm 2	·		Control red travel rmm	Central rad travel rnrn /5	rev/min	rev/min	Santral (Si) travel	rev/min	Control rod		Control rod travel mm 12:
				_					-			

Torque-control travel on flyweight assembly dimension a =

Speed regulation At

1 mm less control

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Fuel delivery characteristics			Starting fuel delivery Idle speed Control		
) strokes	rev/min 3	revimin 4	cm <sup>3</sup> /-1000 strokes 5		_	red travel cm <sup>3</sup> /1000 strokes / mm 7	
	-						
						·	
_	O strokes	3	3 4	3 4 5	3 4 5	3 4 5 6	

## **Test Specifications** Fuel Injection Pumps 1 WPP 001/4 MAN 16,0 d and Governors

8. Edition

PE10A90D520/5 LS 2515

RQV 250-1250 AB993DR RQ 250/1250 AB832DR ./. RO 250/1250 AB992DR ./. supersede . 84 companyMAN engine: D 2530 MF

10 - 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2 0 -45-72-117-144-189-216-251-288-333" ±0,5°(0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benchès and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

(1.45-1.65)

mm (from BDC)

Zy1. 10

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,5-11	6 10, 1 - 10, 3	0,3(0,45)	11,5-11,	10,3-10,4	
250 800/500	9,0-9,2	0,9- 1,5 C. 4-5 -	0,2(0,4) 0,4(0,55)	l .	0,9- 1,5	
000,000		0, 4-3				

Adjust the fuel delivery from each outlet according to the values in [

Testoil-ISO 4113

#### **B.** Governor Settings

**RQV..993 DR** 

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	4	Sliding s	ieeve travel
deflection	rev/min Control	Control rod travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		0
	rod travel mm	rev/min 28	of control lever	rev/min	mm (4)	of control lever	rev/min	mm ③	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.50	1275 1450	14,4-17,4 0 - 1	-	-	•	ca.13	100 250	min.7,2 5,6-5,8	200 700	0,5-1,2 4,4-4,8
ca.48	10,5 4,0	1290-1300 1365-1395					310-3 450	70 = 2,0 0 - 1	270	8,3
						<b>3</b> a				

Torque control travel a = 0,6+0, 1mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-red Test oil ten		intermediate speed	high idle s	rery characteristics (5e peed (50)	Starting Idie switchin		Torque- travel	control (5)
rev/min	cfh <sup>3</sup> /1000 strokes	rev/min 40	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1250	102, 4-103, 5 (100, 5-105, 5)	1290 - 1300*	800	95, 5- 98, 5 (93, 5-100, 5)	100 250	134,25-144,25 7,0 mm RW	1250 900	11,5 12,0
			500	90,0- 94,0 (88,0- 96,0)	100-	170 (80-190)	500	12,3

Checking values in brackets

\* 1 mm less control rod travel than cot. 2

Checkin	ig of stider	Full load st	peed re	gulation	_	idle spec	ed r <b>egu</b> la	ition		Torque d	control	. !
PRG chr	rck (1)	Setting por	nt	Test spec	cifications (4)	Setting r	oint	Test spe	cifications (5)			3)
rev/min	Control rod travel mm	l !	Control rod travet rn:rn 4	Control rad travel rrnrrs 5	rev/min	rev/min 7	Control rod travel rmm 8	rev/min 9	Control rod travel mm	rev/min	Control rod Travel	
600	15,6-16,4	600	16.0	10,5	1295-1310	250	6,1	100	min.7,6	-	_	Ī
				4,0	1345-1375	ļ	,	250	6,0-6,2			
1250	15,6-16,0							360-4 500	120 =2,0 0 - 1			
1500	0 - 1											
	control travel ight assembly dimer	ision a	0	mm	Spe	ed regula	ition At	1295-	1310 min	-1	t mm less cont rod fra	

### C. Settings for Fuel Injection Pump with Fitted Governor

	governor	letivery on control tever np 40 C (104°F)	(2)	Control rod stop	33	Fuel deliv	ery characteristics	Starting (	luel delivery 6
	rev/min	cm <sup>1</sup> /-1000 strake	?s	rev/min 3		rev/min	cm*/- 1000 strokes 5	rev/min 6	cm*/1000 strokes / mm 7
4113	1250	101,5-1 (99,5-1				500	78,0 86,0 (76,0 88,0)	100 250	129,25 - 139,25 7 mm RW
estoil-ISO		alues in brackets	etting	<b>s</b>				]	RQ992 DR
Test			Setting poil	eed regulation  It Test spec	cilications		le speed regulation etting point   Test specific Control   Control	ntrol rod	Torque control  Control rod

## **B.** Governor Settings

Checkini PRG che	g of slider ck	1	Full-load : Setting po	•	gulation Test spec	cilications	4	Idle spec	•		cifications (5)	Torque d	control (3)	
	Control rod travel mm	Ů	rev/min	Control rod travel rom	Control rod travel mm	rev/min	(,	rev/min	Control red travel rmm	rev/min	Control rod travel mm		Control rod travel mm	
600	15,6-16,	4	600	ē,ē	10,5	1295-	1310	250	6,0	100	min.7,5	1250	11,5-11,6	
					4,0	1365-	1395		ļ	l .	5,9-6,1	1000	11,8-12,0	
	·				1500	0 -	1,0			360-4 500	00 =2,0 0 - 1	600	12,2-12,4	
	ontrol travel ght assembly d	ımer	sion a "	0,25	mm		Spe	eed regula		295-1	310 min		1 mm less control rod travel	

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp 40°C (104 F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting idle spec	fuel delivery ed 6
rev/min 1	cm <sup>1</sup> /-1000 strokes	rev/min	rev/min	cm³/-1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes / mm
1250	102,5 - 103,5 (100,5 - 105,5)	-	800	95,5 - 98,5 (93,5 - 100,5)	100	135,0-145,0 (132,0-148,0) = 18,3-19,3
			500	90,0 - 94,0 (88,0 - 96,0)	250	7.0 mm RW

Checking values in brackets

2

Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 OMB 4,6 a

1. Edition

En

PES 4 A 90 D 410 RS 2518 Komb.-Nr. 0 400 844 069

RQ 300/1200 AB 989 DL

supersedes

company:

OM-Brescia CO 3/110

engine:

62.5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

Port closing at prestroke

2,15-2,25

mm (from BDC)

		(2,10-2,30)				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Controt rod travel mm 2	Fuel delivery  cm <sup>2</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 8
1200	10,3+0,1	6,1 - 6,2	0,3(0,45)			
300	7,9-8,1	0,9 - 1,5	0,2(0,4)			
	<u> </u>		1	i	i .	l i

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Checkin PRG che rev/min 1	Control rod	Full-load: Setting po rev/min 3		-	cifications 4	Idle spec Setting p rev/min 7	coint Central red travel		cifications 5 Control rod travel	Torque ( rev/min 11	Control rod
600	15,6-16,4	600	16,0		1245-1260 1360-1390 0 - 1,0	300	6,0	300 450-	min. 7,5 5,9-6,1 490=2,0 max. 1,0	710	10,3-10,4 10,4-10,7 10,8-11,0
	ontrol travel ght assembly dimen	sion e =	0,4	mm	Soe	ed regula	124	5 - 1	260 min <sup>-1</sup>		1 mm less control

## C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics 3b	Starting f	uel delivery 6
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/ mm
1200	60,5 - 61,5 (58,5 - 63,5)	500	900 500	55,5 - 58,5 (53,5 - 60,5) 58,5 - 61,5 (56,5 - 63,5)	300	117,0 - 123,0 (114,0 - 126,0) =16,2 - 16,6 mm RW 9,0 - 15,0 (7,0 - 17,0)

Checking values in brackets

# Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 0MB 4,6 c

En

PES 4 A 90 D 410 RS 2518 Komb.-Nr. 0 400 844 072

RQV 300-1400 AB 1018 L

supersedes

company:

OM-Brescia 8340.04.300

engine: 74 kW

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm <sup>2</sup> /100 strokes 3	Difference cm²/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-lensioning (torque-control valve) mm 6
1400	10,8+0,	7,0 - 7,1	0,3(0,45			
300	7,9-8,	0,9 - 1,5	0,2(0,4)			
,						

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated s			Intermedial	e rated ap	1	Lower rated	speed	1	Sliding	ileeve travel
deflection	rev/min Control	travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel		. ①
of control lever	rod travel	rev/min	of control lever	rev/min	mm (4)	of control lever	rev/min	mm ③		
1	2	3	4	5	6	7	8	9	10	11
max.	1410	15,0-18,	3 -	-	-	ca. 12	100	min. 7,9	250	0-1,0
ca. 66			l l					6,3-6,5	i	2,3-3,1
1	4,0	1500-153	0	l	1	ł	600-	760=2,0	1020	4,5-4,9
	1650	0-1,0				<u> </u>	950	max. 1,0	1400	8,1
						<b>3</b>				

Torque control travel a =

mm

### C. Settings for Fuel injection Pump with Fitted Governor

Full-load de Control-rød Føst oil tem		Rotational-speed (2b) ilmitation intermediate speed	Fuel delic high idle s		Starting Idle switchir		Torque-	Control o
rev/min	cfh³/1000 strokes .	rev/min 4a	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	trave <del>l</del> mm
<u>'</u>	2	3	4	5	8	7	8	9
1400	69,5-70,5 (67,5-72,5)	1440-1450*	-	-	100	16,2-16,6 mm RW	-	-
					300	9,0-15,0 (7,0-17,0)		
					300			

Checking values in brackets

\* 1 mm less control rod travel than col. 2

WPP 001/4 OME 5.4 a 1. Edition

PES 4 A 90 D 410 RS 2518 Z Komb.-Nr. 0 400 844 074

RQ 300/1200 AB 989 DL

supersedes company:

OM-Brescia 8340.05.291

engine: 62,5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(2.10-2.30)

mm (from BDC)

		(2,10-2,50)				
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (forque-control valve) mm 6
		7,0 - 7,1	0,3(0,45			
300	7,9-8,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

PRG che	ck Control rod (travel		int Centrel red travel	Test spec Central rad travel	rev/min	Idle spec Setting p rev/min 7	coint Control (red travel	Test spe	cifications 5 Control rod travel rnm	Torque o	Control rod (3)
1000	14,2-15,8	1000	15,0		1245-1260 1370-1400	300	6,0	300 445	min. 7,5 5,9-6,1 485=2,0 max. 1,0	200 710 500	11,1-11,2 11,2-11,4 11,4-11,5

Torque-control travel
on flyweight assembly dimension a =

Speed regulation: At

1 mm less control

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics  (3b)	Starting f	tuel delivery 6
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes/ mm 7
1200	69,5 - 70,5 (67,5 - 72,5)	500	900 500	65,5 - 68,5 (63,5 - 70,5) 61,5 - 64,5 (59,5 - 66,5)	100	125,0 - 135,0 (122,0 - 138,0) =16,6 - 17,2 mm RW

Checking values in brackets

WPP 001/4 MB 2,2 K

1. Edition

company Daimler-Benz

OM 615 49 kW

Sweden version

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

PES 4 M 55 C 320 RS 104

Komb.-Nr. 0 400 074 995

RSF 375/2300 M 6

1,70-1,80 (1,65-1,85)

mm (from BDC)

Control rod travel

18,5-21,5

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve
rev/min	mm	cm <sup>3</sup> /100 strokes	cm³/100 strokes	mm	cm <sup>1</sup> /100 strokes	mm
1	2	3	4	2	3	6
1000	13,0 <sup>+0</sup> ,	3,7-3,8	0,25(0,3)			
375 1600 2300	6,1-6,	0,65-0,75	0,1(0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

#### **B. Governor Settings**

Lower rated sp			Upper rated spi	eed		Variations in control rod travel			
	Control rod travel			Control rod Rotational speed travel			Rotational speed	Control rod travel	
	mm	rev/min		mm	rev/min		rev/min	mm	
1	2	3	4	5	6	7	8	9	
11-150	6,1-6,3	5 300	50 (7.00)(9.00)(9.00)	12,4-12 9,5 0-1,0	,6 2300 2650 2900	(2) (13) (14) (6)	100 1600 1000 Switching po	min. 20,1 12,7-12,9 13,0-13,1	

## C. Settings for Fuel Injection Pump with Governor Mounted

Full-load d	elivery (19)	Full-load speed (8a) regulation	Variations delivery	. ~		uel delivery	
rev/min	cm <sup>3</sup> /1000 strokes	rev/min	rev/min	(18) cm <sup>3</sup> /1000 strokes	rev/min		Cm <sup>3</sup> /1000 strokes
2300	38,5-40,5 (37,5-41,5)	2650* RW = 9,5	1600 1000	38,0-40,0 (37,0-41,0) 37,0-38,0 (36,0-39,0)	100 375 2650	min. 53,0 6,5-7,5 (6,0-8,0) 15,0-21,0 14,0-22,0)	6,0 1,0 (4,5) 2,5 (3,0)
							· (16

Checking values in brackets

\* Ca:13nn less constroi rod travel than in Column 2

- 1. \*\* Set the idle auxiliary spring at n = 395 min<sup>-1</sup> so that the control-rod travel is exceeded by 1,4 1,5 mm.
- 2. Setting the idle control-lever position:
  At 1000 min<sup>-1</sup>, control rod travel 1.9 2.0 mm
- Control-lever position 47°. After change-over point up to 550 min<sup>-1</sup> no change in control-rod travel. Control-lever position 30°. Speed range 350 min<sup>-1</sup> 450 min<sup>-1</sup>
- 4. Check the pneumatic shutoff box

Control lever at idle stop.

At n = 375 min<sup>-1</sup> and pu = 450 mbar (vacuum)

(338 mmHg) the control rod must return quickly
to control-rod travel = 0 mm.

WPP 001/4 MB 2,4 m 1 3. Edition

PES 4 M 55 C 320 RS 107-1

RSF 375/2250 M 17

Komb.-Nr. 0 400 074 956 Sales model 0 400 074 957

supersedes1,84

company Daimler-Benz OM 616

53 kW (72 PS)

Sweden version

1 - 3 - 4 - 2 0 - 90 - 180 - 270

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2,20-2,30 (2.15-2.35) mm (from BDC)

18,5-21,5 Control rod travel

En

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	cm³/100 strokes	mm	cm <sup>1</sup> /100 strokes	mm
1	2	3	4	2	3	6
1000	13,4+0,	3,9-4,0	0,25(0,3)			
375 1800 2200	6,0-6,2	0,6-0,7	0,1 (0,15 0,25(0,3) 0,25(0,3)			
						:

Set uniform delivery according to the values in

Checking values in brackets

#### **B. Governor Settings**

Lower rated sp	eed		Upper rated spe	eed		Variations in control rod travel			
Degree of deflection of control	eflection travel		Degree of deflection of control	Control rod travel	Rotational speed		Rotational speed	Control rod travel	
lever	mm	rev/min	lever	mm	rev/min		irev/min	mm	
1	2	3	4	5	6	7	8	9	
9-13	min.11,0 max.10,5		50 7	12,5-12,7 8,2- 8,6		(12) (13)	100	min. 20,1	
	6,0-6,2 **	375 400		0- 1.0	-	10	1800 1000	12,8-13,0 13,4-13,5	
5	2,0	720-820	90	_		6	Switching p	oint	

#### C. Settings for Fuel Injection Pump with Governor Mounted

Full-load de	elivery (19)	Full-load speed (8a) regulation	Variations delivery	in fuel (17)	Starting f	uel delivery	Difference
rev/min 1	cm <sup>3</sup> /1000 strokes	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes 7	cm³/1000 strokes
2200	39,5-41,5 (38,5-42,5)	2500* RW 8,2-8,6	1800	39,0-41,0 (38,0-42,0)	100	min. 53,0	6,0 (2a)
			1000	39,0-40,0 (38,0-41,0)	375 2500	6,0-7,0 (5,5-9,0 23,0-27,0	1,0 1,5 2,5 See
					2300	(22,0-28,0)	3,0 Point 8 a

Checking values in brackets

4,2 less control rod travel than in Column 2

01.85

Geschaftsbereich KH. Kundendienst, Kfz-Ausrustung. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fedérale d'Allemagne par Robert Bosch GmbH.

- 1. Position the idle-speed auxiliary spring at  $n = 400 \text{ min}^{-1}$  so that the control-rod travel is forced further by 0.1 0.2 mm.
- 2. Adjusting the idle control-lever position:

  At 1000 min<sup>-1</sup>, control-rod travel 1,4 1.5 mm
- Testing the idle-speed auxiliary spring shutoff

  Control-lever position 47°. No change in control-rod travel after switching point up to 550 min-1.

  Control-lever position 30°. Rotational-speed range 350 min<sup>-1</sup> 450 min<sup>-1</sup>.
- Testing the pneumatic shutoff box

  Control lever against idle stop.

  At n = 375 min<sup>-1</sup> and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

#### 3 **Test Specifications** Fuel Injection Pumps and Governors

WPP 001/4 MB 3,0 o 2 3. Edition

engine

PES 5 M 55 C 320 RS 108-1 RSF 350/2300 M 16

1 - 2 - 4 - 5 - 3

Komb.-Nr. 0 400 075 987

Sales model 0 400 075 988

supersedes 1.84

company

Daimler-Benz

OM 617

65 kW (88 PS)

Sweden version

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

 $0 - 72 - 144 - 216 - 288 \pm 0.50 (0.75)$ 

Port closing at prestroke

2,20-2,30 (2.15-2.35)

mm (from BDC)

18,5-21,5 Control rod travel

Testoil-ISO 4113

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensionirig (compensating valve)
rev/min	mm	cm 1/100 strokes	cm <sup>1</sup> /100 strokes	mm	cm 1/100 strokes	mm
1	2	3	4	2	3	6
1000	13,4 <sup>+0,1</sup>	3,9-4,0	0,25(0,3)			
350 1800 2200	6,0-6,2	0,6-0,7	0,1 (0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in [

Checking values in brackets

#### **B. Governor Settings**

Lower rated sp	eed		Upper rat	ed sp	Upper rated speed				Variations in control rod travel			
Degree of deflection of control	travel	Rotational speed	Degree of deflection of control	1	Control rod travel	Rotat	ional speed		Rotational speed	Control rod travel		
lever	<b>L</b> ULUI	rev/min	lever		mm	rev/m	nm	1	rev/min	mm		
1	2	3	4		5	6		7	8	9		
3-13	min.10,0 max. 9,5 6,0-6,2 ** - 2,0		50	00000	12,5-12 8,6- 9 - 0-1,0	,7 ,0	2200 2500 - 2950	(2) (3) (4) (6)	100 1800 1000 Switching p	min. 20,1 13,0-13,2 13,4-13,5		

#### C. Settings for Fuel Injection Pump with Governor Mounted

Full-load d	, @	Full-load speed 8a regulation	Variation. delivery	in fuel 17	Starting f	uel delivery	
rest oil teil	np 40°C (104°F) cm³/1000 strokes	rev/min	rev/min	(18) cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	Difference cm <sup>3</sup> /1000 strokes
1	2	3	4	5	6	7	8
2200	39,5-41,5 (38,5-42,5)	2500* RW 8,6-9,0	1800	39,0-41,0 (38,0-42,0)	100	min. 53,0	6,0 (2a)
			1000	39,0-40,0 (38,0-41,0)	350	6,0-7,0 (5,5-9,0)	1,0
					2500	23,0-27,0 (22,0-28,0)	2,5 See 3,0 Point 8 a 16
					l		

Checking values in brackets

Ca 4,0 less control rod travel than in Column 2

- 1. \*\* Position the idle-speed auxiliary spring at  $n = 385 \text{ min}^{-1}$  so that the control-rod travel is forced further by 0.1 0.2 mm.
- 2. Adjusting the idle control-lever position:

  At 1000 min<sup>-1</sup>, control-rod travel 1.4 1.5 mm.
- Testing the idle-speed auxiliary spring shutoff
  Control-lever position 47°. No change in control-rod travel after switching point up to 550 min<sup>-1</sup>.
  Control-lever position 30°. Rotational-speed range 350 min<sup>-1</sup> 450 min<sup>-1</sup>.
- Testing the pneumatic shutoff box
  Control lever against idle stop.
  At n = 375 min<sup>-1</sup> and 450 mbar (vacuum) (338 mmHg) the control rod must move briskly to RW (control-rod travel) = 0 mm.

## **Test Specifications** Fuel Injection Pumps (A) and Governors

WPP 001/4 MB 3,0 v

3. Edition

PES 5 M 55 C 320 RS 109-1 RSV 350-1650 MOC 350-1

supersedes8.84

company DaimTer-Benz

OM 617

Komb. 0 400 075 007

Sales model 0 400 075 008  $1-2-4-5-3-0-72-144-216-288 \pm 50 (075)$ 

57 KW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

2,20-2,30

Port closing at prestroke

(2,15-2,35)

mm (from BDC) RW 20.0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm/100 strokes 3	Outference cm <sup>-/</sup> 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>-//</sup> 100 strokes 3	Spring pre-tensioning (forque-control valve) mm
1630	12,5+0,1	3,7-3,8	0,2 (0,3)			
350	6,2-6,5	0,6-0,8	0,1 (0,15			
1150			0,25(0,3)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

1 Uppe	r rated speed		Interm	ediate rate	speed	(4)	4.ower	rated speed	(3) To	rque control
Degree of deflection of control fever	Control rod travel mm	Control fod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel   mm   11
loose	800	0,3-1,0				ca.40	350	6,3	1150 1350	13,2-13,3 12,7-12,9
ca.75	4,0 =	1670-1680 1780-1800 7 = 2000		idlo-cı	need :	uvilian	spring	at 2 mm	1630	12,5-12,6 1-rod trave

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat	speed limitat Characteristics		Starting I	uel delivery 5	4a Idle stop	
rev/min	emp 40°C (104 °F) cm <sup>3</sup> /1000 strokes 2	Note changed to ) rev/min 3	rov/min	cm:/1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes 7	rev/min	Control rod travel mm
1630	37,0-38,0 (36,0-39,0)	1670-1680*	1150	36,5-38,5 (35,5-39,5)	100	RW =20,3 min.53,0		6,3
					350	6,0-8,0 (5,5-9,0)		
* Ad	iustment angle	0° horizon	tal co	ntrol lever po	 slition.			

Checking values in brackets

\* 1 mm less control red travel than col 2

1.85

Geschaftsbereich KH. Kundendiehat. Kf2-Ausruatung.

6. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Allemagne par Robert Bornh GmbH.

## **Test Specifications** Fuel Injection Pumps (1A) WPP 001/4 MB 3,0 v 3 and Governors

2. Edition

PES 5 M 55 C 320 RS 109-1

RSV 400-2200 MOB 352

Daimler-Benz OM 617

Komb.-Nr. 0 400 075 005 Sales model 0 400 075 006

65 kW

 $1 - 2 - 4 - 5 - 3 = 0 - 72 - 144 - 216 - 288 \pm 0,50 (0,75)$ All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings

(2.15-2.35)Port closing at prestroke

mm (from BDC) RW = 20,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm /100 strokes 3	Difference cm <sup>-y</sup> 100 strokes 4	Control rod travel mm	Fuel delivery cm*/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
2180	12,4+0,1	3,85-3,95	0,2 (0,3)			
400 1000	6,2-6,4 13,1+0,1	0,6-0,8	0,1(0,15) 0,25(0,3)			

Adjust the feet delivery from each outlet according to the values in

#### **B. Governor Settings**

	er rated speed		Interm	ediate rati	ed speed	(4)	Lowe	rated speed	3 to	orque control
Degree of deflection	travel	travel				Control* lever		travel		travel
of control lever	mm	ww tea/wiu		1	1.	deflection in degrees	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	]11
loose	800	0,3-1,0				ca.39	400	6,3	1000	13,1+0,1
									1500 2180	12,6-12,9 12,4-12,5
ca.70	2240-22	250 = 11,4								
28		120 = 4.0								
<b>6</b>	2550 =	0,3-1,7	Set	idle-s	peed a	auxiliar	spring	at 2 mm	contro	1-rod trav

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

<b>8</b>	nii-load stop emp 40°C (10.5°F)	Rotational speed limitat Speed limitat Rote			Starting fi Idle	uel delivery 5	<b>48</b> Idi	e stop
rev/min 1	cm <sup>3</sup> /1000 strokes 2	changed to ) rev/min 3	rev/min	cm <sup>3</sup> /1000 strokes 5	rev/min	cm/1000 strokes 7	rev/min 8	travel mm 9
2180	38,5-39,5 (37,5-40,5)	2240-2250*	1000	36,5-37,5 (35,5-38,5)	100 400	min. 53 6,0-8,0 (6,5-9,0)	400	6,3
* Adj	ustment angle =	0° horizon1	al co	ntrol lever posi	tion.			

Checking values in brackets

\* 1 mm less control rod travel than col 2

1.85

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 

1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany imprime en République Fédérale d'Allemagne per Robert Bosch GmbH.

## **Test Specifications** Fuel Injection Pumps and Governors

WPP 001/4 MB 3,0 g

7. Edition

Testoil-150 411

PES 5 MW 55/320 RS 16 RW 375/2200 MW 22 0 403 245 008

supersed 5.82 company Daimler-Benz OM 617A - USA

See back before starting testing (setting the idle stage.

84.6 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2,10-2,20 (2,05-2,25)

mm (from BDC)

21 mm

Control rod travel

ohne ALDA

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve
rev/min	mm	cm³/100 strokes	cm 1/100 strokes	mm	cm 1/100 strokes	mm
1	2	3	4	2	3	6
1000	13,6+0,1	5,35-5,45	0,25(0,3)	·		
365 1600 2180	5,3-5,4	0,9-1,0	0,10(0,15) 0,25(0,3) 0,25(0,3)			
	•			•		

Set uniform delivery according to the values in

Checking values in brackets

#### **B.** Governor Settings

Lower rated sp			(Ipper rated sp	eed		Variations in control rod travel			
Degree of deflection of control	Control rod travel	Rolational speed	Degree of deflection of control	Control rod travel	Rotational speed		Rotational speed	Control rod travel	
lever 1	mm 2	rev/min 3	lever	mm S	rev/min		rev/min	mm	
30 ①	min.11 max.11 5,3-5,4 **	100 320 365	67 ± 27 (9) (1)	11,2 4,0 0-1,0	2360-2320 2620-2720 2950	(2) (3) (4) (6)	100 1600 1000 2180 Switching po	20,5-21,5 12,7-12,9 13,6-13,7 11,7-11,9	

## C. Settings for Fuel Injection Pump with Governor Mounted

Full load d		Full-load speed (8a) regulation	Variations delivery	in fuel (17)	Starting I	uel delivery	and the second of the second o
rev/min	np 40°C (104°F) cm³/1000 strokes 2	rev/min 3	rev/min 4	cm <sup>1</sup> /1000 strokes	rev/min	cm³/1000 strokes	Difference cm <sup>3</sup> /1000 strokes 8
2180	50,0-52,0 (49,0-53,0)	2300-2320* (2295-2325)	1600 1000	52,0-53,5 (51,0-54,5) 53,5-54,5 (52,5-55,5)	100 365 375 2550	min.55,0 9,0-10,0 (7,5-11,5) (5,5-7,5)** 24,5-27,5 (23,5-28,5)	6,0 1,0 (1,5) (1,5) (1,5) (5) 2,5 (3,0)

\* 1 mm less control rod travel than in Column 2

#### Test with ALDA

Point	min <sup>-1</sup>	cm³/1000 lifts	Control-rod travel	Pressure (absolute)
18	1000	53.5 - 54.5 (52.5 - 55.5)	13.6 - 13.7	1733 mbar (1300 mmHg)
18a	1000***	43.0 - 45.0 (42.0 - 46.0)	•	1067 mbar ( 800 mmHg)
19	2180	50.0 - 52.0 (49.0 - 53.0)	11.7 - 11.9	1733 mbar (1300 mmHG)
12a	100	min. 55.0	20.5 - 21.5	1733 mbar (1300 mmHG)
15	365	9.0 - 10.0 (7.5 - 11.5)	5.3 - 5.4	987 mbar ( 740 mmHG)

#### 1. Setting the idle stage: without ALDA

Text replaces Section 4.1 of test instructions Set control-lever position  $30^{\circ}$ . Drive injection pump at  $n=800 \text{ min}^{-1}$ . Screw in spring retainer (torque-control retainer) so that control-rod travel of 1.0-1.3 mm is obtained. Further test steps as per test instructions VDT-W-420/300.

- 2. \*\* Engagement of idle-speed aux. spring at shallowing-out of characteristic; no change allowable in idle delivery.
- 3. Setting the sensing finger:

Bring sensing finger into engagement at  $n=350~\text{min}^{-1}$  with control lever in full-load position. Control-rod travel must be 0.2-0.5~mm (0.1-0.6) mm above full-load control-rod travel at  $n=1000~\text{min}^{-1}$  and 1733 mbar (1300 mmHG)/setting without ALDA.

- 4. \*\*\* Correction of injection quantity at correction screw on ALDA aneroid box. Max. correction + 0.75 mm control-rod travel.
- 5. Shutoff check: Spring idle stop compressed, at n = 200 min<sup>-1</sup> max. control-rod travel = 5 mm.
- 6. Pin projection dimension =  $16.65 \pm 0.1$  mm
- 7. Checking the pneumatic shutoff: Control lever in idle position. Drive injection pump at n = 375 min<sup>-1</sup>. At  $p_u$  = 450 mbar (338 mmHG) (vacuum) control rod must move briskly to control-rod travel 0 mm.
- 8. Adjustment range between idle and full load = 35 39°
- 9. \*\* Idle checking point.

# Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 3,0 g 1

1. Edition

En

estoil-180 4113

PES 5 MW 55/320 RS 16 RW 375/2200 MW 28

See back before starting testing (setting the idle stage.

supersedes

companyDaimler-Benz engine OM 617A - USA

Komb.-Nr. 0 403 245 012

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

2,10-2,20 (2,05-2,25) mm (from BDC)

21 mm

Control rod travel

ohne ALDA

			Olli	ie vedv		
Rotational speed	Control rod travel	Fuel delivary	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm <sup>1</sup> /100 strokes	cm <sup>3</sup> /100 strokes	mm	cm <sup>1</sup> /100 strokes	mm
1	2	3	4	2	3	6
1000	13,6+0,1	5,35-5,45	0,25(0,3)		_	
365 1600 2180	5,3-5,4	0,9-1,0	0,10(0,15) 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

#### **B.** Governor Settings

Lower rated sp	eed		Upper rated speed			Variations in co	ntrol rod trav	el
Degree of deflection of control	Control rod travel			Control rod travel	Rotational speed		Rotational speed	Control rod travel
lever	mm	rev/min	lever	mm	rev/min		rev/min	mm
1	2	3	a.	5	6	7	8	9
	min.11 max.11 5,3-5,4 **	100 320 365	67 ±2 (7) (8) (9) (10)	11,2 4,0 0-1,0	2300-2320 2620-2720 2950	(12) (13) (14) (6)	100 1600 1000 2180 Switching po	20,5-21,5 12,7-12,9 13,6-13,7 11,7-11,9

## C. Settings for Fuel Injection Pump with Governor Mounted

Full load d	lelivery (19)	Full-load speed (8a) regulation	Variations delivery	in fuel (17)	Starting f	uel delivery		
Test oil ter	mp 40°C (104°F)			🔞	1		Difference	1
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm 1/1000 strokes	cm 1/1000 strokes	- 1
1	2	3	4	5	6	7	8	
2180	50,0-52,0 (49,0-53,0)	2300-2320* (2295-2325)	1600 1000	52,0-53,5 (51,0-54,5) 53,5-54,5 (52,5-55,5)	100 365 375 2550	min.55,0 9,0-10,0 (7,5-11,5) (5,5-7,5)** 24,5-27,5 (23,5-28,5)	(3,0)	5)

Checking values in brackets

\* 1 mm less control rod travel than in Column 2

#### Test with ALDA

Point	min <sup>-1</sup>	cm³/1000 lifts	Control-rod travel	Pressure (absolute)
18	1000	53.5 - 54.5 (52.5 - 55.5)	13.6 - 13.7	1733 mbar (1300 mmHg)
633	1000***	43.0 - 45.0 (42.0 - 46.0)	-	1067 mbar ( 800 mmHg)
19	2180	50.0 - 52.0 (49.0 - 53.0)	11.7 - 11.9	1733 mbar (1300 mmHG)
12a	100	min. 55.0	20.5 - 21.5	1733 mbar (1300 mmHG)
15	365	9.0 - 10.0 (7.5 - 11.5)	5.3 - 5.4	987 mbar ( 740 mmHG)

#### 1. Setting the idle stage: without ALDA

Text replaces Section 4.1 of test instructions Set control-lever position  $30^{\circ}$ . Drive injection pump at n =  $800 \text{ min}^{-1}$ . Screw in spring retainer (torque-control retainer) so that control-rod travel of 1,4 - 1,7 mm is obtained. Further test steps as per test instructions VDT-W-420/300.

- 2. \*\* Engagement of idle-speed aux. spring at shallowing-out of characteristic; no change allowable in idle delivery.
- 3. Setting the sensing finger:

Bring sensing finger into engagement at  $n=350~\rm min^{-1}$  with control lever in full-load position. Control-rod travel must be  $0.2-0.5~\rm mm$  (0.1-0.6) mm above full-load control-rod travel at  $n=1000~\rm min^{-1}$  and 1733 mbar (1300 mmHG)/setting without ALDA.

- 4. \*\*\* Correction of injection quantity at correction screw on ALDA aneroid box. Max. correction  $\pm$  0.75 mm control-rod travel.
- 5. Shutoff check: Spring idle stop compressed. at  $n = 200 \text{ min}^{-1} \text{ max. control-rod travel} = 5 \text{ mm.}$
- 6. Pin projection dimension =  $16.65 \pm 0.1$  mm
- 7. Checking the pneumatic shutoff: Control lever in idle position. Drive injection pump at n = 375 min<sup>-1</sup>. At  $p_u$  = 450 mbar (338 mmHG) (vacuum) control rod must move briskly to control-rod travel 0 mm.
- 8. Adjustment range between idle and full load = 35 39°
- 9. \*\* Idle checking point.

## **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 VOL 12,0 d1

5. Edition

PE 6 P 120 A 320 RS 3050

ROV 250 - 1100 PA 611

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 7.83 company: Volvo

engine: TD 120 F Komb.-Nr. 0 401 846 747

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at pres	troke	2,4 -2,5	mm (from 8DC) = RW 9.0 - 12.0 mm							
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery  cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6				
700	12,8+0,1	23,0 - 23,3	0,5(0,9)			$2,5 \pm 0,1$				
250	3,6-3,8	1,8 - 2,3	0,5(0,7)			(2,2 - 2,9)				
		^								

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

pead			Intermediate	rated sp	ed		Lower rated	speed		Stidion	leave travel
Control	travel	•	deflection		Control travel	bor	deflection		Control rod travel	Gilding a	
		<b>②</b>	lever	rev/min 5		<b>①</b>		rev/min	mm 3	1	mm 11
	<u> </u>		-	<u> </u>	<del>-</del>		<del> </del>	ļ	-	1.0	<del></del>
1180	15,2-17	,8	-	-	-		ca. 7	100	min. 5,1	200	0,7-0,9
								250	3,6-3,8	500	4,2-4,8
4,0		55			l			300	-360=2.0	660-	6,4-6,6
1350	0- 1	,0			1			1		1040 🗋	1
							<b>3</b> a)			100	7,3
	rev/min Control rodtravel mm 2 1180 11,8 4,0	rev/min Control rod travel rod travel mm rev/min 3  1180 15,2-17  11,8 1160-11 4,0 1225-12	rev/min Control rod travel rod travel mm rev/min 2s 3 11.8 1160-1170 4.0 1225-1255	Percent   Perc	rev/min Control rod travel rod travel rod travel rod travel rod rod rod rod rod rod rod rod row rev/min 2 2 3 1180 15,2-17,8 11,8 1160-1170 4,0 1225-1255	Control   Cont	Control rod   Control rod   Control rod   Control rod travel   Control	rev/min Control rod travel travel rev/min 2 3 Control rod travel mm rev/min 2 3 Control rod travel mm rev/min 3 Control tever 5 Control rod travel mm 6 Control tever 7 Ca. 7	Control rod travel   Control rev/min   Control rod travel   Control rod rod travel   Control rod rod travel   Control rod	Control rod travel   Control	rev/min Control rod travel rod travel rev/min 2

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test off te		Ilmitation intermediate speed	high idle s		Starting Idle switchir		Torque- travel	Control rod
rev/min	cm³/1000 strokes .	rev/min 4e	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	
1	2	3	4	5	6	7	8	0
LDA	1,2 bar .	1160-1170*	LDA	0 bar	-	-		-
700	230,0-233,0		700	138,0-142,0				
	(227,0-236,0)			(135,0-145,0				
-								
					į '	•		

Checking values in brackets

1 mm less control rod travel then col. 2

## D. Adjustment Test for Manifold Pressure Compensator

Testatn =

rev/min decreasing pressure - in bar gauge pressure

VOL 12.0 d 1

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) ,
PE 6 P RS 3050	1,20		12,8 - 12,9
+ RQV PA 611		0	9,1 - 9,2
		0,82	12,6 - 12,7
		0,07	9,2 - 9,4

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

2

Testoil-ISO 4113

## Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 ROL 16,3 a 1. Edition

En\_

PE 8 P 120 A 120 RS 3059 RQ 750 PA 416 R Komb.-Nr. 0 401 838 700 1 - 4 - 3 - 5 - 8 - 7 - 6 - 2 je 45° + 0,5° (+ 0,75°) supersedes -

company: Rolls Royce

engine: CV 8 TCA

250 kW (340 PS)

All test specifications are valid for Bosch Fuel injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(3,45-3,65)

mm (from BDC) RW= 9.0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>2</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700 300	14,4+0,1 6,1-6,3		0,5(0,9) 0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

PRG che	Control rod		Centrel Cun		est specifications 4		Central	Test specifications 5		Torque control  Control rod	
rev/min 1	travei mm 2	rev/min 3	red travel rnm 4	nd taxel mm 5	rev/min 6	rev/min 7	ind travel inin 8	rev/min 9	travel mm 10	rev/min 11	travel mm 12
•	•	-	-		750-755 775-785 0-1,0	•	~	•	•	-	-

Torque-control travel on flyweight assembly dimension a =

co.m

Speed regulation: At 750 - 755 min<sup>-1</sup>

f mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics	(die spec	
rev/min 1	cm <sup>3</sup> /-1 <i>0</i> 00 strokes 2	rev/min 3	rev/min 4	cm²/~1000 stro≗es 5	rev/min 6	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
700	247,0-251,0 (244,0-254,0)	•	-	-	100	19,5 - 21,0

Checking values in brackets

2.85

BOSCH

eschäftsbereich KH. Kundendienst. KIz-Ausrüstung. 1960 by Robert Boech GmbH. Postfach SO, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany. Iorimé en République Fédérale d'Allemagne per Robert Boach GmbH.

## **Test Specifications** Fuel Injection Pumps (A) and Governors

WPP 001/4 SCA 11,0 t. 1

1. Edition

En

PE 6 P 110 A 720 RS 3065 Komb.-Nr. 9 400 087 286

RSV 350 - 900 P 7/481

supersedes-

Saab-Scania Brasilier

D 11 137 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

3,3 -3,4 (3.25-3.45)

mm (from BD&) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm/100 strokes 3	Difference cm // 100 strokes 4	Control rod travel mm 2	Fuel delivery cm /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	12,2-0,1	13,5-13,7	0,4 (0,8)			2,5 <u>+</u> 0,1
950	6,0-6,2	0,8-1,2	0,2 (0,4)			(2,2 - 2,9)

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

1 Uppe	H rated speed	_	Intermed	diate rated	speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection of control lever 1	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mrn
loose	800 x =	0,3-1,0 6,0	-	-	-	ca. 20	350 100	5.6 min. 20,0	-	**
ca.56	11,2 4,0 1100	940-950 970-1000 0,3-1,7					350 475 -	6,0-6,2 535 = 2,0		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	emp. 40°C (104°F)	Rotational- speed limitat	<b>39</b> 5	oel delivery naracteristics	Starting t	luel delivery 5	idle stop		
rev/min 1	cm <sup>3</sup> /1000 strokes 2	changed to .) rev/min 3	rev/min 4	cm <sup>1</sup> /1000 strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes 7	rev/min 8	travel mm 9	
900	135,0-137,0 (132,0-140,0) -	940-950*	600	132,5-136,5 (129,5-139,5)	100 950	190,0-240, =20,0-21,0 mm RW 8,0-12,0			

Checking values in brackets

\* 1 mm less control rod travel than col 2

3.85

undendisnst Kfz-Ausrüstung. I GmbH, Poetfach 50, D-7000 Stuttgart 1: Printed in the Federal Republic of Germany Fédéraki d'Allemagne par Robert Bosch GmbH.

## **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 FIA 13,8 i

5. Edition

ROV 300-1000 PA 501

supersedes 10.83

Komb.-Nr. 0 401 846 728

PE 6 P 120 A 720 RS 3069

company: Fiat

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test 8210.22.269

tubing 1 680 750 0 67

220 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Rump Settings

travel	Fuel delivery  cm <sup>3</sup> /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strakes 3	Spring pre-tensioning (torque-control valve) mm 6
12,4+0	1 20,1-20,3	0,5(0,9)			
6,0-6	2 1,5-2,1	0,8(1,2)			
	travel mm 2 12,4+0,	travel mm cm³/100 strokes 2 3 12,4+0 1 20,1-20,3	travel cm³/100 strokes cm³/ 100 strokes 2 cm³/ 100 strokes 4 12,4+0 1 20,1-20,3 0,5(0,9)	travel   cm³/100 strokes   cm³/ 100 strokes   cm³/ 100 strokes   mm   2   cm³/ 100 strokes   mm   2   cm²/ 100 strokes   mm   2   cm³/ 100 strokes   cm³/ 100 strokes	travel

Adjust the fuel delivery from each outlet according to the values in [

#### **B.** Governor Settings

Upper rated s	peed			Intermediate	Intermediate rated spec			Lower rated speed					Sliding sleeve travel		
	rev/min Control	Control rod travel	•	Degree of deflection		Control travel	rod	Degree of deflection		Control re	bd		0		
of control lever	rod travel	mm rev/min	20	of control lever	rev/min	mm	•	of control lever	rev/min	mm	3	rev/m/in	mm		
1	2	3		4	5	6		7	8	9		10	11		
max.	1045	15,2-17	,8	•	-	-	,	ca. 10	100	min.7		325	1,2-1,4		
ca. 65	11 4	1040-10	50	1					300	16,0-6	,2		2,6-3,1		
ca. 05	4.0	1115-11		1				350-455				800 000	5,7-6,0 7,9		
	1250	0-1,		ļ									','		
						ł		<b>3</b>							

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten	d stop np. 40°C (104°F) (2)	Rotational-speed (20) limitation intermediate appead rev/min	high idle s	very characteristics (56) speed (50) cm <sup>3</sup> /1000 strokes	idle switchi	_	Torque- travel	Control od travel
1	2	3	4	5	6	7	8	9
LDA 1000	0,7 bar 201,0-203,0 (198,0-206,0)	1040-1050*	LDA 1000	0 bar 158,0-160,0 (155,0-163,0)		175,0-195,0 (171,0-199,0		

Checking values in brackets

\* 1 mm less control rod travel than col. 2

## D. Adjustment Test for Manifold Pressure Compensator

FIA 13,8 i

-2-

Test at n -

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure - bar	Gauge pressure = bar	mm (1) ,
PE 6 PRS 3069 +RQVPA 501	0,70	0 0,36 0,31	12,4-12,5 10,0-10,1 11,6-11,7 10,6-11,0

Notes

(1) when n

rev/min and gauge pressure =

bar ( = maximum full-load control rod travel)

## Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 FIA 13,8 h 6. Edition

PE 6 P 120 A 720 RS 3069

RQ 300/1000 PA 502

supersedel0.83 company.Fiat

engine: 8210.22.373

Komb.-Nr. 0 401 846 729

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 0 67

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

## A. Fuel Injection Pump Settings 3,5-3,6 (3,45-3,65) m

mm (from BDRW=9.0-12.0 mm

Rotational speed revimin	Control rod travel mm	Fuel delivory cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm	Fuel delivery  cm <sup>2</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,4+0,	20,1-20,3	0,5(0,9)			
300	6,0-5,	1,5-2,1	0,8(1,2)			
					1	

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Checkin	_	Full-load a Setting po	•	•	cifications (4)	Idle spec			cifications (5)	Torque d	control 3
rev/min 1	Control rod travel mm 2	rev/min 3	Cantral red travel rnm 4	Central red travel mm 5	rev/min 6	rev/min	Control rad travel ITITI 8	rev/min 9	Control rod	rev/min	travel
600 VH=	19,2-20,8 max. 46°	600	20,0		1045-1060 1130-1160 0-1,0	300	Ť	300		000 600	12,4-12,5 12,4-12,6

Torque-control travel on flyweight assembly dimension a

1045-1060 min ' Speed regulation: At

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 38	Fuel deliv	ery characteristics 3b	Centin		
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /~1000 strokes 5	rev/min 6	rad tradi cm <sup>3</sup> /1000 strokes;/ mm 7	
LDA 1000	0,7 bar 201,0-203,0 (198,0-206,0)	<b>-</b>	LDA 1000	0 bar 158,0-160,0 (155,0-163,0)	100	175,0-195,0 (171,0-199,0)	

Checking values in brackets

· 3.85

## D. Adjustment Test for Manifold Pressure Compensator

FIA 13,8 h

-2-

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (t) .
PE 6 PRS 3069 +RQPA 502	0,70	0 0,36 0,31	12,4-12,5 10,0-10,1 11,6-11,7 10,6-11,0

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 FIA 13,8 i 1

1. Edition

PE 6 P 120 A 720 RS 3069

ROV 300-1200 PA 727

supersedes-

Komb.-Nr. 9 400 087 309

company: Fiat Diesel

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

engine: 220 kW

tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	itroke	(3.45-3.65)	mm (from BDC)	RW=9.0-12	.O mm	
Rotational speed	Control rod travel	Fuel delivery cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> / 100 strokes	Control rod travel	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
1000	12,4+0,	19,9-20,1	0,5(0,9)			
300	6,0-6,2	1,5-2,1	0,8(1,2)			
		ł		I	1	J

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed		Sliding	leave travel
deflection of control	rev/min Control rod travel mm 2	Control rod travel mm rev/min	(a) (3)	Degree of deflection of control lever		Control rod trevel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm
max.	1045	15,2-17,8	В	-	•	-	ca. 10	100	min.7,6	325	1,2-1,4
ca. 65		1040-1050 1115-1149						300	6,0-6,2	450 800 1000	2,6-3,1 5,7-6,0 7,9
	1250	0-1,0					350-455			1000	7,9
							<b>3</b>				

Torque control travel a = - m

### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rot Test oil ten		Rotational-speed 2b timitation intermediate speed	Fuel deliv	ery characteristics 5e peed 50	Starting Idle switching	, 0	Torque- travel	control 5
rev/min	cm <sup>3</sup> /1000 strokes .	rev/min 49	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1000	0,7 bar 199,0-201,0 (196,0-204,0		LDA 1000	0 bar 158,0-160,0 (155,0-163,0		175,0-195,0 (171,0-199,0		••

Checking values in brackets

\* 1 mm less control rod travel than col. 2

#### D. Adjustment Test for Manifold Pressure Compensator

FIA 13,8 i 1

-2-

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure - bar	mm (1)
PE 6 PRS 3069 +RQVPA 727	0,70	0 0,36 0,31	12,4-12,5 10,0-10,1 11,6-11,7 10,6-11,0

Notes

(1) when n

rev/min and gauge pressure = bar (- maximum full-load control rod travel)

## **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 RVI 12,0 a

6. Edition

PES 6 P 120 A 320 RS 30% ROV 250-1100 PA 495

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 0.67

supersede 5.83 company RVI MIDR 063540 223 kW (3U4 PS) Komb.-Nr. 0 402 046 719

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	3,50-3,60	mm (from BDC)	RW 9,0	- 12.0 mm	
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,9-13,	19,3-19,5	0,5(0,8)			
250	4,3-4,5	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in Mark for start of pump delivery on tester body 12° after start of pump delivery, cylinder 1 = 9,0-12,0 mm control-rod travel. **B. Governor Settings** 

Upper rated speed			Intermediate	diate rated speed Lower rate			speed		Sliding sleeve travel	
deflection	rev/min Control	travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel	Singing s	<b>①</b>
lever	rod travel	rev/min 28	of control	rev/min	mm (4)	of control	rev/min	mm ③	rev/min	
	2	3	-	2		<del> </del>	8	9	10	11
max.	1160	15,2-17,8	-	-	-		200	min.6,0		0,9-1,0
ca. 66	11,9	1160-1170					300	4,3-4,5	800 100	4,6-4,8 7,7
	4,0 1350	1235-1265 0-1,0			j	290-400				
						<b>3</b> a				

Torque control travel a

#### C. Settings for Fuel Injection Pump with Fitted Governor

			Fuel delivery characteristics 5a high idle speed 5b		Starting Idle switchir		Torque-control (travel	
rev/min	cft <sup>3</sup> /1000 strokes .	rav/min 4	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1100	0,7 bar 193,0-195,0 (190,0-198,0)		LDA 500	ਹ bar 124,0-126,0 (121,0-129,0)		150,0-170,0 146,0-174,0) 70 (80-190)	-	•

Checking values in brackets

\* 1 mm less control rod travel than col. 2

## D. Adjustment Test for Manifold Pressure Compensator

RVI 12,0 a

-2-

Testat n -

500 rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure - bar	mm (1)
PE 6 PRS 3070 +RQVPA 495	0,70	0 0,29 0,21	12,9-13,0 10,6-10,7 12,5-12,6 11,0-11,4

Notes

(1) when n =

rev/min and gauge pressure =

bar (" maximum full-load control rod travel)

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 f 5

1. Edition

FE 6 P 120 A 320 RS 3071 Komb.-Nr. 0 401 846 780

RQV 300-1050 PA 371-1

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes -

company: Volvo

engine: TD 1206 BM

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at pres	troke	2,0 -2,7 (2.55-2.75)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm <sup>3</sup> /100 strokes 3	cm <sup>3</sup> / 100 strokes 4	mm 2	cm <sup>3</sup> /100 strokes 3	mm 6
700	10,5+0,1	17,5 - 17,7	0,5 (0,9)			2,5 <u>+</u> 0,1
300	5,3-5,5	1,7 - 2,1	0,5 (0,7)			(2,2 - 2,9)
			1			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated s	speed			Intermediate	rated sp	eed	-	Lowe	reted	speed			Sliding	leeve travel
	rev/min Control rod travel	Control rod travel mm rev/min		Degree of deflection of control lever	rev/min	Control root travel	ı A	Degre defied of cor lever	tion	rev/min	Control travel	rod ③	rev/min	1
1	2	3		4	5	6		7		8	9		10	11
max.	1140	15,2-17,	8	-	-	-		ca.	14	100	min.	6,8	250	1,1-1,3
ca. 43	9,5	1105-111	5							250	, 5,3-5	,5	520	3,1-3,5
	4,0 1325	1185-121 0-1,0								380 -	440=	2,0	780 1050	5,0-5,3 7,5
								<b>3</b> a)					<u> </u>	

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te		Rotational-s limitation intermediate		Fuel deli- high idle s	very characteristics 5e speed 50	Starting Idle switchin	, 0	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min	. 🕶	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3		4	5	8	7	8	9
LUA 700	0,9 bar 175,0-177,0	1105 -	1115	LDA 1000	0,9 bar 180,0-186,0	-	•	-	-
	(172,0-180,0)				(177,0-189,0	300	17,0 - 21,0		
				LDA -	0 bar				
				700	148,0-152,0 (146.0-154.0		•		

Checking values in brackets

VOL 12,0 f 5

- 2 -

Test at n =

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P RS 3071	0,90		10,5 - 10,6
+ RQV PA 371-1		0	9,1 - 9,2
		0,57	10,1 - 10,2
		0,41	9,4 - 9,6

Notes

(1) when n =

rev/min and gauge pressure =

bar ( = maximum full-load control rod travel)

estolki80 4113

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 12,0 f 4 3. Edition

En

PE 6 P 120 A 320 RS 3071 Z RQV 250-1025 PA 371 Komb.-Nr. 0 401 846 766 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 7.83 company: Volvo

engine: TD 120 G/USA

243 kW (330 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at pres	stroke	2,6 -2,7	mm (from BDC)			
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery  cm <sup>3</sup> /100 strokes	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,4+0,1	19,6 - 19,8	0,5 (0,9)			2,5 <u>+</u> 0,1
250	5,8-6,0	2,2 - 2,6	0,5 (0,7)			(2,2 - 2,9)
0						

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Sliding s	leeve travel
deflection	rev/min Control	Control rod (a)	genection		Control rod travet	Degree of deflection		Control rod travel		0
of control lever	rod travel mm	rev/min 28	of control lever	rev/min	mm (4)	of control lever	rev/min	mm 3	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	-	-	-	ca. 12	100	min. 7,3	200	0,7-0,9
ca. 42	10,4	1065-1075		}		1	250	5,8-6,0	475	2,8-3,1
]	4,0	1145-1175					350-4	10 = 2,0	750	4,8-5,1
	1300	0-1,0				<b>3a</b>			1025	7,2

Torque control travel a =

mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter	d stop np. 40°C (104°F) 2	limitation intermediate speed	high idle s		idle switchin	ng point	travel	Control rod travel
1	2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strakes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min 8	9
LDA 700	0,9 bar 196,0-198,0 (192,0-202,0)	1065 - 1075	LDA 700	0 bar 164,0-168,0 (161,0-171,0		240,0-280,0 = RW 20,0 21,0 mm		•

Checking values in brackets

\* 1 mm less control rod travel tflan col 2

3.85

VOL 12,0 f 4 - 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 PRS 3071 Z	0,90		11,4 - 11,5
+ RUV PA 371		0	9,9 - 10,0
		0,45	11,0 - 11,1
		0,28	10,1 - 10,3

Notes

(1) when n =

rev/min and gauge pressure =

bar ( = maximum full-load control rod travel)

Testoil-ISO 4113

# **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 VOL 12,0 f2 2. Edition

PE 6 P 120 A 320 RS 3071 Z Komb.-Nr. 0 401 846 765

ROV 250-1100 PA 371/2R

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 0 67

supersedes1.83 Volvo

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Potetienel eneed		2.55-2.75)	mm (from BDC)	F.H. 3 -11-		
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm <sup>3</sup> /100 strokes 3	cm <sup>3</sup> / 100 strokes 4	mm 2	cm <sup>3</sup> /100 strokes 3	mm 6
700	12,7+0,1	24,1-24,3	0,5(0,9)			
250	5,3-5,5	2,2-2,6	0,3(0,6)			7
		Α				
			ĺ			}

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Upper rated	speed		Intermediate	rated sp	eed	Lower rated	speed		Sliding	leeve travel
deflection	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Shoring s	0
lever 1	mm 2	rev/min 28	lever 4	rev/min 5	mm 4	lever 7	rev/min 8	mm 3	rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 12	100	nin.6,8		0,7-0,9
ca. 46	11,7 4,0 1350	1140-1150 1215-1245 0 - 1,0						5,3-5,5	500	2,9-3,3 5,1-5,4 7,9
						<b>③</b>				

Torque control travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter	lelivery d stop np. 40°C (104°F) 2	intermediate append	high idle s	very characteristics (5e peed (5b)	Starting Idle switching		Torque- travel	Control Control
rev/min 1	cm <sup>3</sup> /1000 strokes . 2	rev/min 4e) 3	rev/min 4	cm <sup>3</sup> /1000 strokes	rev/min	cm³/1000 strokes	rev/min	trevel mm
LUA 700	0,9 bar 241,0-243,0 (238,0-246,0)	1140-1150*	LUA 700	0 bar 153,0-157,0 (150,0-1 <i>6</i> 0,0)	100	240,0-250,0 = RW 20,0 - 21,0 mm	-	•

Chucking values in brackets

-2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

VOL 12,0 f 2

Pump/governo?	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = g bar	mm (1) .
PE6PRS 3071Z + RQVPA 371/2R	0,67	0,90 0 0,26	11,9-12,0 12,7-12,8 9,3- 9,4 10,1-10,3

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

# **Test Specifications** Fuel Injection Pumps 2 and Governors

WPP 001/SCA 8,0 m 3

2. Edition

PE 6 P 110 A 720 RS 3076 RQ 750 PA 528

supersede 8.83 companyScania engine: DS 840

Komb.-Nr. 0 401 846 775

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fue! Injection Pump Settings

Port closing at prest	roke (3	.25-3.45)	mm (from EDC)			
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,9+0,1	11,7-11,9	0,5 (0,7)			•

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

PRG che	Control rod	Full-los Setting rev/mit	Control rad travel	•	rev/min	Idle spec Setting p rev/min 7	Control red travel	Test spe		Torque o	Control rod
•	-		-	10,9 4,0 850	750-755 784-797 0-1,0		-	_	-	-	-

Torque-control travel on flyweight assembly dimension a =

Speed regulation: 750-755 min<sup>-1</sup>

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel delivery characteristics			Control Control		
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm³/~1000 strokes 5		rev/min 6	cm <sup>3</sup> /1000 strokes:/ mm 7	
700	117,0-119,0 (115,0-121,0)	-	-	-		100	190,0-240,0 = 20,0-21,0 mm RW	

Checking values in brackets

. 4.85

#### SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see YDT-I-400/117
- Test specifications approved by Scania on 22.8.1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

2

estoil-150 4113

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 8,0 m 2. Edition

<u>En</u>

PE 6 P 110 A 720 RS 3076 Komb.-Nr. 0 401 846 776

RQ 900 PA 528

supersedes • 83 company Scania

engine DS8 40

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(3.25-3.45)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

mm (from BDC)

	·	7,20-3,437	<del>-1</del>	<del></del>	<del></del>	1
Rotational speed	Control rod travel	Fuel delivery  cm³/100 strokes	Difference cm <sup>3</sup> / 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
	{*******	CIII 7 100 SII OKES	100 3110463	1 """	Cili 7100 Silokes	Dim
1	<b>j</b> 2	3	4	2	3	[6
850	11,9+0,1	12,0-12,2	0,5(0,7)			
	-					
	4					
					1	
	1	1				i

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

ŀ	Checkin	g of slider	_	Full-load	speed re	gulation	<u>:</u>	Idle speed regulation				Torque	control
þ	PRG che	ck	$\bigcirc$	Setting po	oint	Test spe	cifications (4)	Setting p	point	Test spe	cifications (5)		(3)
	ev/min	Control rod travel mm 2		rev/min 3	Central red travel mm	Control red travel mm 5	rev/min 6	rev/min 7	Control red travel rmm	rev/min 9	Control rod travel	ĺ	Control rod (
	-	-		•	•	10,9 4,0 1000	900-905 941-955 0-1,0	-	•	-	-	-	•
7	···	ontrol travel								900	-905 min-1		1 1

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics	Starting fuel delivery Idle speed		
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min	cm <sup>3</sup> /1000 strokes:/ mm	
850	120,0-122,0 (118,0-124,0)	-		-	100	190,0-240,0 = 20,0-21,0 mm RW	

Checking values in brackets

4.85

**BOSCH** 

#### SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22.8.1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Testoil-ISO 4113

# Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 SCA 8.0 m 2 2. Edition

PE 6 P 110 A 720 RS 3076 Komb.-Nr. 0 401 846 777

RO 750 PA 528-1

supersedes R3 Scania Company DS 16 40

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(3.25 - 3.45)

mm (from BDC)

		(0,00	•			
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery  cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,6+0,1	13,2-13,4	0,6 (0,8)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

1	g of slider	Full-load		-		Idle spe				Torque	_
PRG che rev/min	Control rod	Setting prev/min	Centrel red travel mm	Test spe Control rad travel mm	rev/min	Setting prev/min	Control red travel		control rod travel mm		Control rod travel mm 12
•	•	•	-	11,6 4,0 850	750-755 784-79 <b>7</b> 0-1,0	•	-	•	-	-	•
Torgue-c	ontrol travel	<u> </u>	<u></u>					750-	755 min-1		1 mm less contre

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rad stop 3a	Fuel delivery characteristics			Starting fuel delivery Idle speed		
rev/min 1	cm³/-100G strokes 2.	rev/min 3	rev/min	cm <sup>3</sup> /~1000 strokes 5		rev/min 6	cm <sup>3</sup> /1000 strokes:/ mm	
700	132,0-134,0 (130,0-136,0)	•	••	-		100	190,0-240,0 = 20,0-21,0 mm RW	

Checking values in brackets

4.35

#### SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22.8.1983
- Start of fuel delivery-engine: 17° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

2

# Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 SCA 8,0 m 1 2. Edition

Eπ

PE 6 P 110 A 720 RS 3076

RQ 900 PA 528-2

Komb.-Nr. 0 401 846 778

company Scania engine DS 18 40

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(3.25-3.45

mm (from BDC)

Rotational speed	Control rod	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning
	travel *		cm <sup>3</sup> /	travel		(torque-control valve)
rev/min	mm	cm <sup>3</sup> /100 strokes	100 strokes	mm	cm <sup>3</sup> /100 strokes	mm
1	2	3	4	2	3	6
850	12,6+0,1	13,4-13,6	0,6(0,8)			
			İ			
				1		

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Checking PRG che	g of slider ck	$\bigcirc$	Full-load s	•	-	cifications (4)	idle spec			cifications (5)	Torque o	control (3)
rev/min	Control rod travel mm 2			Contrel red travel mm 4	Control rad travel rnm 5	rev/min	rev/min 7	Control red travel rnm 8	rev/min 9	Control rod travel mm 10	rev/min	Control rod (travel)
-	-		1	1	11,6 4,0 1000	900-905 941-955 0-1,0	•	•	-	-	•	•

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

900-905 min-1

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever mp. 40°C (104°F)	Control rad stop 3a	Fuel delivery characteristics			Starting f Idle spee	d Control
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5		rev/min 6	red travel cm <sup>3</sup> /1000 strokes / mm 7
850	134,0-136,0 (132,0-138,0)	-	• .	•		100	190,0-240,0 = 20,0-21,0 mm RW

Checking values in brackets

4.85

**BOSCH** 

leschäftsbereich KH. Kundendienst. Kfz-Ausrüstung. 5-1980 by Robert Bosch GmbH, Postisch 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany. morime en RépubPque Fédérale d'Allemagne par Robert Bosch GmbH.

#### SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22.8.1983
- Start of fuel delivery-engine: 17° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

# **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 STE 12.0 b 2

1. Edition

PE 8 P 110 A 121 LS 3113

ROV 250-1100 PA 702

supersedes

Komb.-Nr. 0 401 858 703

1 - 5 - 4 - 8 - 6 - 3 - 7 - 2 je  $45^{\circ} \pm 0.5^{\circ}$  ( $\pm 0.75^{\circ}$ )

companySteyr engine: WD 815.67

242 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at pre	stroke	(2.75-2.95)	mm (from BDC)			
Rotational speed	Control rod travel	Fuol delivery	Difference cm <sup>3</sup> /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm <sup>3</sup> /100 strokes	100 strokes	mm 2	cm <sup>3</sup> /100 strokes	mm 6
1100	11,8+0,1	15,0-15,2	0,4(0,75			
250	6,1-6,3	1,5-2,1	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Testoil-ISO 4113

Upper rated s	Upper rated speed			ermediate rated speed			apeed		Sliding s	iaeve travel
deflection of control	Control rod travel mm	travel	Degree of deflection of control lever	rev/min	Control rad travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm 11
max.	1140	15,2-17,8	-	<u> -</u> -		ca. 11	100	min.7,6		0.7-0.9
ca. 62	10,8	1140-1150 1210-1240			_	ca. II	250	6,1-6,3 185 = 2,0	500	3,6-4,1 5,4-5,7 8,0
					L	<b>3</b>				

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roi Teat oil ten rev/min	1 stop 1p. 40°C (104°F) 2		high idle s	9	idle awitchir		Torque- travel rev/min	Control 5 Control rod travel mm
LDA 1100	0,9 bar 150,0-152,0 (147,0-155,0)	1140-1150*	LDA 600 LDA 500	0,9 bar 166,0-170,0 (163,0-173,0 0 bar 107,0-109,0 (104,0-112,0		200,0-240,0 (196,0-244,0		

Chucking values in brackets

\* 1 mm less control rod travel than col. 2

3.85

STE 12,0 b 2 - 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

500			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) ,
PE 8 PLS 3113 + RQVPA 702	0,90	0 0,65 0,48	12,7-12,8 9,7-9,8 12,2-12,4 10,6-10,8

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

2

# Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,7 a

1. Edition

En

PES 6 P 110 A 820 LS 3131-10 Komb.-Nr. 0 402 046 751

RQ 300/1100 PA 723

supersedes

company Daimler-Benz OM 427 H 177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Fuel delivery

cm<sup>3</sup>/100 strokes

1,4-2,0

C. Sp. 4 u.

A. Fuel Injection Pump Settings

Control rod

12,1+0,1

7.4-7.6

mm

Port closing at prestroke (4.25-4.45)

Rotational speed

1100

300

600

rev/min

mm (from BDC)RW = 9.0-12.0 mm

	3	KW = 9,U-	12,0 mm	
	Difference cm <sup>3</sup> / 100 strokes	Control rod travel	Fuel delivery cm <sup>3</sup> /100 strokes	Spring pre-tensioning (torque-control valve)
	100 311 0 KBS	1		mm
	4	2	3	6
	0,4(0,8)			
	0,4(0,7)			
5	0,6(0,8)		İ	
				1

Adjust the fuel delivery from each outlet according to the values in

**B.** Governor Settings

Checkin PRG che	g of slider ck 1	Full-load : Setting po		•	cifications (4)	Idle spe			cifications (5)	Torque (	control (3)
rev/min 1	Control rod Iravel mm	rev/min	Centrel red travel mm	Control red travel mm 5	rev/min 6	rev/min 7	Control red travel	rev/min	Control rod	rev/min 11	Control rod (travei
550 VH =	19,2-20,8 max. 46°	550	20,0	11,2 4,0 1300			7,5	100 300 340-3	min. 9,0 7,4-7,6 80 = 2,0	•	•

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At 1145-1160 min<sup>-1</sup>

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop	Fuel deliv	rery characteristics 3b	Starting t	tuel delivery
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm <sup>3</sup> /1900 strokes:/ mm
1100	140,0-142,0 (137,0-145,0)	-	600	117,0-121,0 (114,0-124,0)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

3.85

BOSCH

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 k 2

2. Edition

PE 8 P 120 A 320 LS 3807-10

RQV 300-1150 PA 545-2

supersedes12.84

Komb.-Nr. 0 401 848 762

company: Daimler-Benz

1-8-7-2-6-3-5-4 je 45°  $\stackrel{+}{=}$  0,5° ( $\stackrel{+}{=}$  0,75°) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

243 kW

tubing 1 680 750 0 67
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,95-4,15)

mm (from BDC)Zy1. 8

Rotational speed ray/min 1	Control rod travel mm 2	Fuel delivery  cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,5+0,1	15,3-15,5	0,5(0,9)			
300 750 500	5,2-5,4 - -	1,2-1,8 C, Sp.4 u. 5	0,8(1,2) 0,7(1,2)	3		

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Upper rated s	peed		Intermediate	Intermediate rated speed			speed	Lower rated speed			
deflection of control	rodtravel	Control rod travel mm rev/min 28	deflection	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3		mm	
max. ca. 54	9,5 4,0 1350	15,2-17,8 1190-1200 1235-1265 0-1,0	1	-	-	ca. 17	100 300 335-4	min.6,7 5,0-5,2 05=2,0	300 800 1200 1260	1,6-1,8 6,0-6,2 8,1-8,3 9,9	
						<b>3</b>					

Torque control travel a = U, 6 mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ros Test oil ten					Starting Idle switchir		Torque- travel	control 6
rev/min 1	cm³/1000 strokes .	rev/min 49	rev/min	cm³/1 <b>000</b> strokes 5	rev/min 6	cm <sup>3</sup> /1000 strokes	rev/min 8	travel mm 9
LDA 1150	0,7 bar 153,0-155,0 (150,0-158,0)		LDA 750 LDA 500	0,7 bar 171,0-174,0 (168,0-177,0 0 bar 139,0-141,0 (136,0-144,0	)	140,0-160,0 (136,0-164,0		10,5+0, 11,1+0,

Checking values in breckets

MB 14,6 k 2

.2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting  Gauge pressure - bar	Measurement Gauge pressure = bar	diminution Control rod travel difference mm (1)
PE 8 P.:LS 380:-10 +RQVPA 545-2	0	0,45 0,50	10,3-10,4 10,4-10,5 10,8-11,0

**Notes** 

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

estoil - ISO 411

2. Edition

RQ 300/1150 PA 187-3 PE 10 P 110 A 320 LS 3808 Komb.-Nr. 0 401 842 700

10 - 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2 0 -45 -72 -117-144-189-216-261-288-333° + 0,50° (+0,75°)

9.80 Daimler Benz OM 423 259 kW(352 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

# A. Fuel Injection Pump Settings (3,95-4,15) Port closing at prestroke 4,00-4,10

mm (from BDC)

Rotational speed rev/min	Control rad travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1 150 300 600	12,2+0,1 8,0-8,2 -	1,6-2,2	0,4(0,75 0,4(0,9 0,6(0,9)	)		e
						•

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Checkin		(1)	Full-load : Setting po	oint	Test spec		ldle spec Setting p	oint		cifications (5)	Torque control		
rev/min 1	Control rod travel mm 2		rev/min 3	Control red travel rnm 4	Control red travel rnm 5	rev/min 6	rev/min 7	Control red travel rnrn B	rev/min	Control rod travel mm	rev/min 11	Control rod travel mm 12	
650	13.0-1	4,0	650	13,5	11,2	1195-1210	300	8,1	100	min.10,2	-	-	
					4,0	1235-1265			300	8,0-8,2			
					1350	0 - 1,5			420-	60 = 2,0			
									550	max.1,0			

Torque-control travel

Speed regulation: At

1 mm less control

#### C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	rery characteristics (3b)	Starting fuel delivery Idle speed		
rev/min 1	cm <sup>3</sup> /-1000 strokes ° 2	rev/min 3	rev/min 4	cm <sup>3</sup> /-1000 strokes 5	rev/min	red travel cm <sup>3</sup> /1000 strokes:/ mm 7	
1150	123,0 - 125,0 (120,5 - 127,5)	600	600	116,0 - 120,0 (113,0 - 123,0)	100	130,0 - 150,0 (126,0-154,0)	

Checking values in brackets

# Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 MB 11,0 e 1 2. Edition

PE 6 P 120 A 320 LS 3810 RSV 350 - 1150 PO/810
1-6-3-5-2-4
0-75-120-195-240-315° + 0,5° (+ 0,75°)
Values only apply to test nozzle-and-holder
assembly 1 688 901 019 and fuel-injection test
All text specification 880 valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedts 84
compan Da imler-Benz
engine OM 421 A
184 KW

Komb.-Nr. 0 401 876 733

A. Fuel Injection Pump Settings

4,0 -4,1
Port closing at prestroke (3,95-4,15)

mm (from BDC)

Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm 2	cm1/100 strokes 3	cm <sup>1</sup> / 100 strokes 4	mm 2	cm <sup>-/</sup> /100 strokes	mm 6
10,6+0,1	16,3-16,5	0,5 (0,9)			
4,7-4,9	1,6- 2,2	0,8 (1,2)			7
			,		
	mm 2 10,6+0,1	travel mm 2 cm //100 strokes 3 10,6+0,1 16,3-16,5	travel mm 2 cm'/100 strokes 3  10,6+0,1  16,3-16,5  0,5  0,9)	travel mm 2 cm'/100 strokes 100,6+0,1 16,3-16,5 0,5 (0,9)	travel mm 2 cm <sup>1</sup> /100 strokes 2 cm <sup>1</sup> /100 strokes 4 cm <sup>1</sup> /100 strokes 2 cm <sup>1</sup> /100 strokes 2 cm <sup>1</sup> /100 strokes 3 cm <sup>1</sup> /100 strokes 2 cm <sup>1</sup> /100 strokes 3 cm <sup>1</sup> /100 strokes

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

	r rated speed Control rod travel mm		Interme	ediate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	14 5 7	rque control Control rod travel mm
1ose	800 x =	0,3-1,0 4,75	-	-	-	ca. 36		4,8 min. 19,5		-
ca. 56	9,6 4,0	1175-1185 1250-1270					350 380-44	4,7 - 4,9 0 = 2,0 **		

Set idle-speed auxiliary spring at 2 mm control-rod travel.

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	Rotational- speed limitat  Speed limitat			Starting t	uel delivery 5	4a) Idle stop	
	cm /1000 strokes	Note changed to .) rev/min 3			rev/min 6	cm <sup>1</sup> /1000 strokes		Control rod travel mm
1130 (	163,0 - 165,0 160,0 - 168,0)	1175-1185*		-	100	140,0-160, 136,0-164,	0 - 0)	-

Checking values in brackets

\* 1 mm less control rod travel than col 2

3.85

WPP 001/4 MB 14,6 f 7. Edition

**Testoil-ISO 4113** 

PE8P120A320LS3811 RQ 300/1150 PA 556 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 0 67

supersede 84

company
OM 422 A

engine 243 kW (330 PS)

Komb.-Nr. 0 401 848 734

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection, Pump Settings

Port closing at prestroke

(3.95-5.15)

mm (from BDC)

lotational speed	Control rod travel	Fuel delivery	Difference cm <sup>1</sup> /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm <sup>1</sup> /100 strokes	100 strokes	mm	cm 1/100 strokes	mm
1	2	3	4	2	3.	6
1150	10,4+0,1	16.2 - 16.4	0,4(0,8)			4
300	5,0-5,2		0,8(1,2)			
600	-	C,Sp. 4'u.5	0,8(1,2)	i .		
				•		
			<u> </u>			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Checking	g of slider	Full-load s	peed re	gulation	:	idle spec	ed regula	ation		Torque o	ontrol
	Control rod	Setting po	Control rod travel		cifications Control rod [travel	Setting p	Control rad travel		cifications Control rod Itravel		Control rod travel
rev/min	mm 2	rev/min	mm 4	rev/min 5	mm 6	rev/min 7	mm 8	rev/min	mm 10	rev/min 11	12
600	19,1-20,8	600	20,0		1195-1210		4,2		min.6,0	-	•
VH =	max.46°			4,0	1225-1255				4,1-4,2 80=2,0 mm		

Torque-control travel on flyweight assembly dimension a

mm

Speed regulation At 1195-1210 min-1

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop	fuel deliv	ery characteristics	Starting (	Starting fuel delivery		
rev/min 1	cm³/-1000 strokes	rev/min 3	rev/min	cm³/-1000 strokes 5	rev/min	cm <sup>3</sup> /100 strokes 7		
1150	162,0 - 164,0 (159,0 - 167,0)	-	600	152,0 - 158,0 (149,0 - 161,0)	100	125,0-145,0 121,0-149,0)		

Checking values in brackets

# **Test Specifications** Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 11.0 r

1. Edition

PE 6 P 110 A 320 LS 3814-10 Komb.-Nr. 0 401 846 805

RO 300/1150 PA 187-6

supersedes"

Daimler-Benz company. OM 421

1 - 6 - 3 - 5 - 2 - 4 0 -75 -120-195-240-315° ± 0.5° (± 0.75°) engine 159 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

### A. Fuel Injection Pump Settings

Port closing at prestroke

(3,95-4,15)

mm (from BDQ)y1. 6; RW=9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm	Fuel delivery  cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,4+0,1	13,2-13,4	0,4(0,8)			
300	8,3-8,5	1,2-1,8	0,4(0,7)			
			٥			

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Checkin PRG che	(1)	Full-load : Setting po	•	_	cifications (4)	Idle speed regulation Setting point   Test specifications (5)				Torque control		
rev/min 1	Control rod travel mm 2	rev/min 3	Control red travel rmm	Control red travel rnm ·	rev/min	rev/min	Control rod travel mm	rev/min 9	Control rod	rev/min	Control rod travel	<b>O</b>
650	13,2-14,0	650	13,6	11,5 4,0 1350	1195-1210 1240-1270 0-1,0		8 <b>,4</b>	300 430-4	min.10,0 8,3-8,5 70=2,0	•	-	
orane-c	ue-control travel						11	95-12	10 min		1 mm less co	aleal

Torque-control travel

1 mm less control rod travel

#### C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever pp. 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics 3b	Starting fuel delivery Idle speed		
rev/min 1	cm <sup>3</sup> /-1000 strokes 2	rev/min 3	rev/min	cm <sup>3</sup> /-1000 strokes	rev/min 6	cm <sup>3</sup> /1000 strokes / mm 7	
1150	132,0-134,0 (129,5-136,5)	600 :	600	\$10,0-114,0 (107,0-117,0)	100	130,0-150,0 (126,0-154,0)	

Checking values in brackets

3.85

# Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 MB 11,0 k 1 1. Edition

Εn

PE 6 P 110 A 320 LS 3814-10 RSV 350-1150 PCA 810 Komb.-Nr. 0 401 876 723 1-6-3-5-2-4 0-75-120-195-240-315° + 0,5° (+ 0,75°)

supersedrs Da

Daimler-Benz OM 421

engine OM 421 159 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

(1)

4,0 -4,1 (3,95-4,15)  $_{mm \text{ (from BDC)}}$  Zy1. 6; RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm <sup>-1</sup> /100 strokes 3	Difference cm <sup>-y</sup> 100 strokes 4	Control rod travel mm 2	Fuel delivery cm //100 strakes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	12,1+0,1	13,5 - 13,7	0,4 (0,8)			
350	7,7-7,9	1,4 - 2,0	0,4 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Degree of deflection	feffection travel travel			Intermediate rated speed			Control- lever total control travel			rque control  Control rod  travel
of control lever	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	mm 9	rev/min	11
loose	800	0,3-0,7		-	-	ca. 28	350	7,8	-	-
100.50	X =	3,25					350	7,7-7,9		
ca.53	· ·	1165-1175					430 -	490 = 2,0		
28	4,0 1400	1240-1260 0.3-1.4				·				

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	ult-load stop	6 Rotational- speed limital		ne'i delivery naracteristics	Starting 1 Idle	g fuel delivery 5 4a Idle stop			
rev/min	cm*/1000 strokes	changed to ) rev/min 3	rev/min 4	cm <sup>3</sup> /1000 strokes 5	rev/min	cm 71000 strokes 7	rev/min 8	travel mm 9	
1130	135,0-137,0 (132,5-139,5)	1165-1175*	-	-	100	140,0-160 (136,0-164		-	
		1							

Checking values in brackets

# **Test Specifications** Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 11,0 q

3. Edition

PE 6 P 120 A 320 LS 3815

RSV 650-1150 P1/820 R

supersede 3.83 company Daimler-Benz

Komb.-Nr. 0 401 876 722

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

OM 421 A 184 kW

killest specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings 4,0-4,1

Port closing at prestroke

estoil-ISO 4113

(3.95-4.15)

mm (from BDO y1. 6

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm <sup>1</sup> /100 strokes 3	Difference cm <sup>1</sup> / 100 strokes 4	Control rod travel mm	Fuel delivery cm*/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1130	11,0+0,1	16,3-16,5	0,5(0,9)			
650	3,5-3,7	1,6-2,2	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Degree of deflection of control	r rated speed Control rod travel	rev/min  Control rod  travel  mm rev/min	Interme	diate rated	speed	Control- lever deflection	Lower	rated speed Control rod travet	3 to	rque control Control rod travel
lever 1	2	3	4	5	6	in degrees	8	9	10	11
lose	800	0,3-1,0	-	-	•	ca. 36	650	3,6	-	-
	X =	3,0					650	3,5-3,7		
39	10,0 4,0 1300	1160-1170 1185-1200 0,3-1,7					655-71	5 = 2,0 **		

\*\* Set idle-speed auxiliary spring at 2 mm control-rod travel.
The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

	ill load stop emp 40°C (104°F)	6 Rotational- speed limitat		Fuel delivery characteristics		Starting fuel delivery 5		4a) Idle stop	
rev/man	cm Y1000 strokes	changed to ) rev/min 3	rev/min 4	cm <sup>1/1</sup> 000 strokes 5	rev/min	cm <sup>3</sup> /1000 strokes 7	rev/min 8	travel mm	
1130	163,0-165,0 (160,0-168,0	1160-1170*	0	•	100	140,0-16 (136,0-16	0,0 - 4,0)	•	

# Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 MB 11,0 q 2

1. Edition

PE 6 P 120 A 320 LS 3815

RSV 750-1150 P 1/820-1

1- 6- 3 - 5 - 2 - 4 0-75-120-195-240-315° + 0,5° (+ 0,75°) company Daimler-Benz
OM 421 A
184 kW
Komb.-Nr. 0 401 876 722

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

4,0 - 4,1 (3,95-4,15) mm (from BDC) Zy1. 6

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm <sup>-/</sup> /100 strokes 3	Difference cm <sup>y</sup> 100 strokes	Control rod travel mm 2	Fuel delivery cm <sup>-/</sup> 100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1130	11,0+0,1	16,3-16,5	0,5 (0,9)			
750	3,6-3,8 Value assem tubin	1,8-2,4 s only apply t bly 1 688 901 g 1 680 750 0	D19 and fue	le-and-hol l-injectio	der n test	

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min	Interme	diate rated	speed	Control- tever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 To	rque control  Control rod  travel  mm   11
lose	800 x =	0,3-1,0 4,0	-	-	•	ca. 36	750 750	3,7 3,6-3,8	-	-
ca. 60	10,0 4,0 1300	1160-1170 1185-1200 0,3-1,7					655-81	5 = 2,0		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	il-load stop	6 Rotational- speed limitat	(3a) Fu	uel delivery naracteristics	Starting f	uel delivery 5	4a Idle stop		
Test oil to rev/min 1	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to .) rev/min 3	rev/min	cm <sup>3</sup> /1000 strokes 5	rev/min	cm71000 strokes	rev/min	Control root travel mm	
1130	163,0-165,0 (160,0-168,0)	1160-1170*	-	-	100	140,0-160 (136,0-164	0 - 0)	-	

Checking values in brackets

## **Test Specifications** Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 11,0 q 3

1. Edition

PE 6 P 120 A 320 LS 3815-10 1-6-3-5-2-4 0-75-120-195-240-315° ± 0.5° (± 0.75°)

RSV 750-1150 P 1 A 820-1

supersedes companyDaimler-Benz OM 421 A

Komb.-Nr. 0 401 876 722

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

4,0 - 4,1(3,95-4,15)

mm (from BDC) Zyl. 6

Rotational speed	Control rod travel	Fuel delivery	Difference cm <sup>1</sup> /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm /100 strokes	100 strokes	mm	cm // 100 strokes	mm
	-	3		-	3	0
1130	11,0+0,1	16,3-16,5	0,5 (0,9)			
750	3,6-3,8	1,8-2,4	0,8 (1,2)			
		es only apply mbly 1 688 901 ng 1 680 750 (	019 and fe			

Adjust the fuel delivery from each outlet according to the values in

#### B. Governor Settin 38

Degree of deflection of control lever	r rated speed Control rod travet mm		Intermed	diate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	IX 9 /	rque control  Control rod  travel  mm   11
loose	800 x =	0,3-0,7 4,0	-	-	-	ca. 36	750 750	3,7 3,6-3,8 5 = 2,0	-	-
ca. 60	10,0 4,0 1300	1160-1170 1185-1200 0,3-1,4					655-8	15 = 2,0		

The numbers denote the sequence of the tests

#### C. Settings for Fuel Injection Pump with Fitted Governor

2b F	II-load stop	6 Rotational- speed limitat	iel delivery paracteristics	Starting	fuel delivery 5	(4a) Idle stop		
rev/min	emp. 40°C (104°F) cm³/1000 strokes 2	Note: changed to .) rev/min 3	rev/min	cm <sup>3</sup> /1000 strokes 5	rev/min	cm <sup>3</sup> /1000 strokes	rev/min B	Control rod travel mm 9
1130	163,0-165,0 (160,0-168,0)	1160-1170*	-	-	100	140,0-160 (136,0-164	,0 - ,0)	-

Checking values in brackets

### 0

# Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 14,6 o

3. Edition

En

PE 8 P 120 A 320 LS 3816 RQV 350 - 1150 PA 590 1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je 45° + 0,5° (+ 0,75°) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 3.83

company: Daimler Benz

engine: OM 422 A

243 kW (330 PS)

Komb.-Nr. 0 401 848 744

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

Port closing at pres	troke	4,0 -4,1	mm (from BDC)	mm (from BDC)							
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6					
1150	11,0+0,1	15,8 - 16,0	0,5(0,9)								
350	4,9-5,1	1,2 - 1,8	0,8(1,2)								
<u> </u>											
						•					

Adjust the fuel delivery from each outlet according to the values in

#### **B. Governor Settings**

Upper rated s	peed			Intermediate	rated sp	4	Lower rated	speed		Sliding s	leeve travel
deflection	rev/min Control rod travel mm 2	Oontrol rod travel mm rev/min 3	(1) (2)	Degree of deflection of control lever	rev <i>ir</i> nin 5	control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min 10	mm 11
max.	1240	15,2-17	,8	-	•	**	ca. 10	100	min.6,0	300	0,6-0,9
ca. 63	,	1190-12 1270-13						350	4,5-4,6		3,6-3,7 5,2-5,3
	1400	0- 1	,0				370-480 39			1150	7,6

Torque control travel a = 0.5 mm

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		limitation intermediate speed	high idle s	pery characteristics (5a)	Starting idle awitchir	<u> </u>	Torque- travel	Control rod
rev/min	cm <sup>3</sup> /1000 strokes .	rev/min 🐠	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm3/1000 strokes	rev/min	
1	2	3	4	5	8	7	8	9
LDA 1150	0,7 bar 158,0-160,0 (155,0-163,0)	1190-1200*	LDA 600 LDA 500	0,7 bar 166,0-172,0 (163,0-175,0) 0 bar 140,0-142,0 (137,0-145,0)			850 1	1,0+0,1 1,4+0,1 1,5+0,2

Checking values in brackets

MB 14,6 o

2 -

Test at n =

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting .	Measurement	diminution Control rod travel- difference
	Gauge pressure = b	Gauge pressure = bar	mm (1)
PE 8 PLS 3816	0,70		11,6 - 11,7
+ RQV PA 590		0	10,5 - 10,6
		0,47	11,4 - 11,5
		0,40	10,9 - 11,0

Notes:

(1) when n =

rev/min and gauge pressure =

bar ( \* maximum full-load control rod travel)

Testoil-ISO 4113

PE 8 P 120 A 320 LS 3816-10 RQV 350 - 1150 PA 590 1 - 8 - 7 - 2 - 6 - 3 - 5 je  $45^{\circ} \pm 0.5 (\pm 0.75^{\circ})$ Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 0 67

supersedes -

company: Daimler Benz OM 422 A

243 kW (330 PS)

Komb. Nr. 0 401 848 744

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

1150 11,0+0,1 15,8 - 16,0 0,5(0,9)	3	3	O strokes mm 2	strokes 1	mm cm <sup>3</sup> /100 st	v/min mr 2
			,5(0,9)	- 16,0	11,0+0,1 15,8	1150 11
350 4,9-5,1 1,2 - 1,8 0,8(1,2)			,8(1,2)	- 1,8	4,9-5,1 1,2	350 4

Adjust the fuel delivery from each outlet according to the values in [

#### **B.** Governor Settings

Upper rated	peed			Intermediate	rated sp	eed		Lower rated	speed			Stiding s	ieeve travel
	rev/min Control rod travel mm	travel	9	Degree of deflection of control lever	rev/min	Control ro travel mm	<b>4</b>	Degree of deflection of control tever	rev/min	Control re travel mm	od 3		0
max.	1240	15,2-17	',8	-	-	-		ca. 10	100	min.6,	0	300	0,6-0,9
ca. 63	10,0 4,0 1400	1190-12 1270-13 0- 1	100					370-480 ③		4,5-4,			3,6-3,7 5,2-5,3 7,6

Torque control travel a = 0.5

#### C. Settings for Fuel injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel delh high idle t	very characteristics (5e)	Starting Idle awitchin		Torque- travel	Control rod
rev/min	cm <sup>3</sup> /1000 strokes	rev/min 40	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1150	0,7 bar 158,0-160,0 (155,0-163,0)		LDA 600 LDA 500	0,7 bar 166,0-172,0 (163,0-175,0 0 bar 140,0-142,0 (137,0-145,0)		140,0-160,0 (136,0-164,0	8501	1,0+0,1 1,4+0,1 1,5+0,2

Checking values in brackets

1 mm less control rod travel then col. 2

2.85

MB 14,6 o 1

Test at n =

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 8 PLS 3816-1	0 0,70		11,6 - 11,7
+ RQVPA 590		0	10,5 - 10,6
		0,47	11,4 - 11,5
	,	0,40	10,9 - 11,0
			c

Notes:

(\*) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

En

Testoil-ISO 4113

## **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 SCA 9.0 a

1. Edition

PE 6 P 120 A 320 RS 7102

ROV 200-1100 PA 712-1

supersedes\_

Komb.-Nr. 0 402 646 800

company: Scania engine: DS 9 01

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

#### A. Fuel Injection Pump Settings

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery  cm³/100 strokes	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,1	16,3-16,5	0,6(0,9)			3,3 <sup>±</sup> 0,1
225	4,8-5,0	1,5-1,9	0,3(0,6)			(3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in

#### **B.** Governor Settings

Upper rated	speed	,	Intermediate	e rated sp	eed	Lower rated	speed		Stiding s	sleeve travel
Degree of deflection of control	re //min Contro! rod travel	Control rod travel	of control		Control rod travel	Degree of deflection of control		Control rod travel		0
lever	mm 2	rev/min (28	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min 10	mm 11
<u> </u>	<u>-</u>	3	ļ <u>.                                    </u>	-	0	<u> </u>	8	-	1.0	<del>  ''</del>
max.	1140	15,2-17,8	-			ta. 10	100		25	0,9-1,0
~			I	1			225 4	8-5,0	350	2,3-3,2
ca. 63	11,0	1140-1150	1	•			300-3	60=2.0	20	3,7-4,5
	4,0	1280-1310	!			1			550	5,0-5,2
	1450	0-1,0	l						140	8,8
					1					
				1	1	<b>③</b>	i		1	

Torque control travel a =

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load di Control-roi Test oil ten	stop np. 40°C (104°F) 2	Rotational-speed (20) limitation intermediate speed			Starting fuel delivery 6 Idle switching point rev/min cm²/1000 strokes		Torque- travel	Control (5) Control rod travel
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 163,0-165,0 (160,0-168,0	1140-1150*	LDA 1100 LDA 500	0,9 bar 164,0-172,0 (162,0-174,0) 0 bar 141,0-145,0 (139,0-147,0)		240,0-290,0 =20,0-21,0 mm RW	•	•

Checking values in brackets

SCA 9,0 a

-2-

Test at n =

500

rev/min decreasing pressure – in bar gauge pressure increasing

Pump/governor	Setting	Measurement	diminution Control rod travet- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 7102 +RQVPA 712-1	0,90	0 0,42 0,38	12,0-12,1 11,3-11,4 11,7-11,8 11,5-11,7

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

# **Test Specifications** Fuel Injection Pumps 1 and Governors

WPP 001/4 SCA 11.0 1

1. Edition

PE 6 P 120 A 720 RS 7104 Y

RQV 200-1000 PA 725

supersedes -

Komb.-Nr. 0 402 646 821 Y

Values only apply to test nozzle-and-holder

company: Saab-Scania DSC 11 02

assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 0 67

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prei	STOKE	(4.45-4.65)	mm (Irom BDC)	RW = 6.0 - 8.	O mm	
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Difference cm <sup>3</sup> / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm <sup>3</sup> /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	16,0+0,1	22,4-22,6	0,7(1,0)			3,3 <sup>±</sup> 0,1 (3,0-3,5)
225	4,4-4,6	1,4-1,8	0,3(0,6)			**
			Port clos travel 7 camshaft	0 - 14,7	erence between mm and max. 1	control-rod 85 - 2,55°

Adjust the fuel delivery from each outlet according to the values in [

#### **B.** Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
deflection	rev/min Control rod travel	travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		, O
lever		rev/min 2a	lever	rev/min	mm 4	lever	rev/min	mm ③	rev/min	mm ,
1	2	3	4	5	8	7	8	9	10	11
max.	1040	15,2-17,8	-	-	-	ca. 10		min.5,9	150	0-0,4
	15.0	1010 1050			i l				430	2,9-3,4
ca. 62		1040-1050					310-	370=2,0	720	5,0-5,3
	1300	1175-1205							1000	7,9
	1300	0-1,0								
						<b>3</b> a				

Torque control travel a

#### C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		limitation intermediate speed	Fuel delivery characteristics 5a high idle speed 50		Starting Idle switchir	<u> </u>	Torque-control 5 travel  Control rod	
rev/min	cm <sup>3</sup> /1000 strokes .	rev/min 4a)	rev/min	cm³/1000 strokes	rev/min	cm <sup>3</sup> /1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
LDA 700	0,9 bar 224,0-226,0 (221,0-229,0		LDA 1000	0,9 bar 220,0-228,0 (218,0-230,0)		240,0-290,0 =20,0-21,0 mm RW	-	-
	·		LDA 500	0 bar 164,0-168,0 (162,0-170,0				

Chucking values in brackets

SCA 11,0 j

-2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governot	Setting	Measurement	diminution Control rod travel- difference		
	Gauge pressure - bar	Gauge pressure - bar	mm (1) .		
PE 6 PRS 7104 Y +RQVPA 725	0,90	0 0,41 0,29	16,0-16,1 11,8-11,9 14,0-14,1 12,4-12,6		
*					

Notes:

(1) when n =

rev/min and gauge pressure =

bar ( " maximum full-load control rod travel)

#### SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-1-400/117
- Test specifications approved by Scania on 17.5.1984
- Start of fuel delivery-engine: 22° before TDC at control-rod travel= 6,0-8,0 mm
- Firing sequence, engine
- 1-5-3-6-2-4
- \*\* Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9 3,1 mm